



# MATHEMATICS PRIMARY FIVE FIRST TERM

PART (1)





UNIT

1

Theme 1 | Number Sense and Operations

# Unit 1

## Decimal Place Value and Computation



# Concept (1-1)

## Decimals to the Thousandths Place

### Lesson (1): The Journey Begins



**Whiteboard: 1.** Use the terms in the word bank to fill in the place values in the chart. You can abbreviate Ones (O), Tens (T), and Hundreds (H) so they fit in the boxes.

Hundreds	Hundreds	Hundreds	Hundredths
Milliards	Millions	Ones	Ones
Ones	Ones	Ones	Tens
Tens	Tens	Tenths	Thousands


2. In 734.28 the digit 8 is in the \_\_\_\_\_ place. Its value is \_\_\_\_\_.

3. In 452.09 the digit 5 is in the \_\_\_\_\_ place. Its value is \_\_\_\_\_.



**Whiteboard: 4.** Write the following number in the place value chart: six hundred forty-two thousand, five hundred one, and fifty-one hundredths.

Milliards		Millions			Thousands			Ones			•	Decimals	
O		H T O			H T O			H T O			•	Tenths	Hundredths





**Whiteboard: 5.** Use the digits to create the greatest possible number. Record it in the place value chart.

7, 3, 6, 0, 2, 1, 4, 9, 2, 7

Milliards		Millions				Thousands			Ones			•	Decimals	
O		H	T	O		H	T	O	H	T	O	•	Tenths	Hundredths

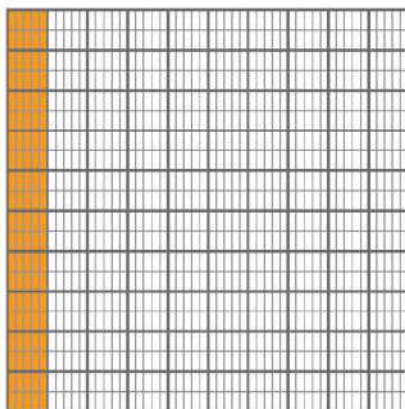


**Whiteboard: 6.** Use the digits to create the smallest possible number. Record it in the place value chart.

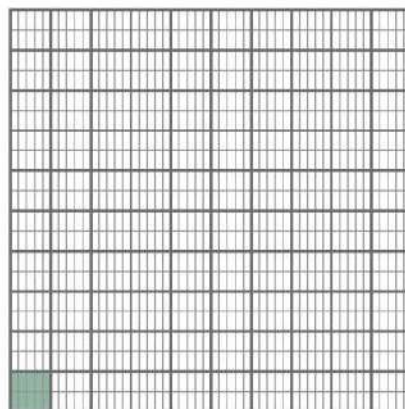
7, 3, 6, 0, 2, 1, 4, 9, 2, 7

Milliards		Millions				Thousands			Ones			•	Decimals	
O		H	T	O		H	T	O	H	T	O	•	Tenths	Hundredths

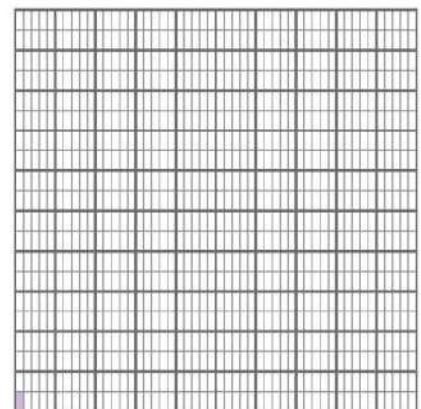
## Lesson (2): Decimals to the thousandths place



1 Tenth



1 Hundredth



1 Thousandth





I'm in the  
hundreds  
place



My value is  
100

I'm in the  
tens  
place



My value is  
30

I'm in the  
ones  
place

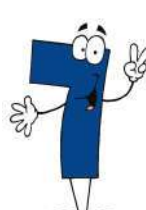


My value is  
4

I'm the  
decimal  
point



I'm in  
the tenths  
place



My value is  
0.7 or  $\frac{7}{10}$

I'm in the  
hundredths  
place



My value is  
0.08 or  $\frac{8}{100}$

I'm in the  
thousandths  
place



My value is  
0.009 or  $\frac{9}{1000}$

hundreds  
tens  
ones  
tenths  
hundredths  
thousandths

154.123

**Remember:**

0.4 , 0.40 and 0.400 are all equivalent

**[1] Write the following numbers in the standard form:**

- 1) Seven tenths = .....
- 2) Three tenths = .....
- 3) Seven thousandths = .....
- 4) Twenty four hundredths = .....



- 5) Three hundred fifty one hundredths = .....
- 6) Four and seven tenths = .....
- 7) Twenty and three hundredths = .....
- 8) Three hundred sixty four hundredths = .....
- 9) Ninety one and one thousandths = .....
- 10) Six hundred thirty five and nine tenths = .....



[2] Write the following decimals in the word form:

- 1) 0.3 = .....
- 2) 0.05 = .....
- 3) 0.34 = .....
- 4) 0.238 = .....
- 5) 3.7 = .....



[3] Complete the table:

Number	thousands	hundreds	tens	ones	decimal point	tenths	hundredths	thousandths
5.6					.			
27.98					.			
123.8					.			



[4] Circle the tenths digit:

36.85 - 78.2 - 636.4 - 1.124 - 0.024



[5] Circle the tens digit:

65.78 - 987.2 - 16.147 - 5644.2 - 102.6



[6] Circle the hundredths digit:

36.85 - 3.156 - 99.123 - 0.546



[7] Write the value of the red digit:

0.247      4.158      23.425      45.56      0.024

.....



[8] Write the value of the red digit:

36.85      79.2      638.4      1.324

.....





Write the following number in the place value table:

Six hundred forty two thousands, five hundred and eighty one hundredths.

Milliards	Millions			Thousands			Ones			Decimal Point	The decimal fraction	
Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths



Complete the following as in the example:

• **Example:** 0.516 consists of five tenths, one hundredth and six thousandths.

- a 0.837 consists of ..... tenths, ..... hundredths, ..... thousandths.  
 b 0.945 consists of ..... tenths, ..... hundredths, ..... thousandths.



Write the following digits in the place value table to form:

- a the greatest decimal number      b the smallest decimal number

7 , 3 , 6 , 0 , 2 , 1 , 4 , 9 , 2 , 7

	Millions			Thousands			Ones			Decimal Point	The decimal fraction	
	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths
The greatest												
The smallest												



Choose the correct answer:

a Forty three thousandths =

1 0.430

2 0.043

3 3.040

4 340.000

b Two hundred seven thousandths =

1 0.207

2 0.702

3 2.007

4 207.000

c Three tenths and 8 thousandths =

1 0.308

2 0.830

3 0.038

4 30.008

d 6 tenths, 5 thousandths and four hundredths =

1 60.405

2 0.645

3 0.546

4 0.654



Answer the following:

a In 734.28: the place value of 8 is ..... and its value is .....

b In 452.09: the place value of 5 is ..... and its value is .....

c In 675.42: the place value of 6 is ..... and its value is .....

d In 9,073.62: the place value of 9 is ..... and its value is .....



Complete the following as in the example:

• Example:  $0.6 = 0.60 = 0.600$

6 tenths = 60 hundredths = 600 thousandths

a  $0.700 = 0. .... = 0.7$

b  $0.400 = 0.40 = 0. ....$

c  $0.900 = 0.90 = 0. ....$

d  $0. .... = 0.50 = 0.5$



Complete the following:

a 3 tenths = ..... hundredths = ..... thousandths.

b ..... tenths = 50 hundredths = ..... thousandths.

c ..... tenths = ..... hundredths = 700 thousandths.



## Lesson (3): Place Value Shuffle:

**Ten Is a Powerful Number** Use the place value charts to solve each problem. | in the blanks to show how the value of each digit also changed. An example is shown.

Example:  $57 \times 10 =$

Thousands	Ones			•	Decimals	
O	H	T	O	•	Tenths	Hundredths
		5	7	•	0	0
	5	7	0	•	0	0

The value of the whole number increased by a factor of 10.

The value of the 5 increased by a factor of 10 from 50 to 500.

The value of the 7 increased by a factor of 10 from 7 to 70.



1.  $57 \div 10 =$

Thousands	Ones			•	Decimals	
O	H	T	O	•	Tenths	Hundredths

2. The value of the whole number \_\_\_\_\_ (increased/decreased) by a factor of 10.

The value of the \_\_\_\_\_ (first digit) \_\_\_\_\_ (increased/decreased) by a factor of 10 from \_\_\_\_\_ to \_\_\_\_\_.

The value of the \_\_\_\_\_ (second digit) \_\_\_\_\_ (increased/decreased) by a factor of 10 from \_\_\_\_\_ to \_\_\_\_\_.





3.  $6.5 \times 10 =$

Thousands	Ones			.	Decimals	
O	H	T	O	.	Tenths	Hundredths

4. The value of the whole number \_\_\_\_\_ (increased/decreased) by a factor of 10.

The value of the \_\_\_\_\_ (first digit) \_\_\_\_\_ (increased/decreased) by a factor of 10 from \_\_\_\_\_ to \_\_\_\_\_.

The value of the \_\_\_\_\_ (second digit) \_\_\_\_\_ (increased/decreased) by a factor of 10 from \_\_\_\_\_ to \_\_\_\_\_.



5.  $345 \div 10 =$

Thousands	Ones			.	Decimals	
O	H	T	O	.	Tenths	Hundredths

6. The value of the whole number \_\_\_\_\_ (increased/decreased) by a factor of 10.

The value of the \_\_\_\_\_ (first digit) \_\_\_\_\_ (increased/decreased) by a factor of 10 from \_\_\_\_\_ to \_\_\_\_\_.



# Homework

[1] Write the following numbers in the standard form:

- 1) Two hundredths = .....
- 2) Sixteen hundredths = .....
- 3) Forty five tenths = .....
- 4) Nineteen thousandths = .....
- 5) Five hundred sixty nine thousandths = .....
- 6) Eighty five and sixty one thousandths = .....
- 7) Fifty two and thirty one thousandths = .....
- 8) Seventeen and forty four thousandths = .....



[2] Write the following decimals in the word form:

- 1) 0.1 = .....
- 2) 0.008 = .....
- 3) 0.047 = .....
- 4) 2.5 = .....
- 5) 32.8 = .....



[3] Complete the table:

Number	thousands	hundreds	tens	ones	decimal point	tenths	hundredths	thousandths
6.47					.			
456.2					.			
36.123					.			



[4] Circle the tenths digit:

864.2 - 88.6 - 978.2 - 9.687 - 0.008



[5] Circle the tens digit:

13.75 - 33.54 - 25.115 - 9936.5 - 300.7



[6] Circle the hundredths digit:

986.05 - 60.001 - 0.01 - 7.123



[7] Write the value of the red digit:

8.451    6.247    36.214    4.2    2.4

.....

.....

.....

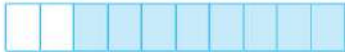
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**[8] Write the value of the red digit:****867.2****98.6****578.2****9.682****Choose the correct answer:**

- 1 Five hundredths = .....  
 (a) 50                      (b) 500                      (c) 0.5                      (d) 0.05
- 2 The shaded part in the opposite figure is .....  

 (a) 2                      (b) 0.2                      (c) 0.8                      (d) 8
- 3 In the numeral form 7,605,219,834 the place value of the digit 7 is .....  
 (a) ones                      (b) millions                      (c) thousands                      (d) millions
- 4 In the numeral form 9,243,618,075 the value of the digit 9 is .....  
 (a) 9,000,000                      (b) millions                      (c) millions                      (d) 9,000,000,000



**Math around Egypt: Gas Price Decimals** Look at the list of different petrol prices in Egypt. Take turns with your Shoulder Partner reading each of the petrol prices aloud.

**Gas Prices per Liter, April 2021**

80 Octane petrol: 6.75 LE  
 92 Octane petrol: 8.00 LE  
 95 Octane petrol: 9.00 LE

1. Which type of petrol is the least expensive?
2. Which type of petrol is the most expensive?



Use the place-value charts to solve each problem. Fill in the blanks to show how the value of each digit also changed.

a.

$$5.8 \times 10$$

Thousands	Ones			.	Decimals	
O	H	T	O	.	Tenths	Hundredths
				.		
				.		

- The value of the whole number \_\_\_\_\_ [increased / decreased]
- The value of the 5 [increased / decreased] when multiplying by 10 from \_\_\_\_\_ to \_\_\_\_\_
- The value of the 8 [increased / decreased] when multiplying by 10 from \_\_\_\_\_ to \_\_\_\_\_

b.

$$942 \div 100$$

Thousands	Ones			.	Decimals	
O	H	T	O	.	Tenths	Hundredths
				.		
				.		

- The value of the whole number \_\_\_\_\_ [increased / decreased]
- The value of the 9 [increased / decreased] when dividing by 100 from \_\_\_\_\_ to \_\_\_\_\_
- The value of the 2 [increased / decreased] when dividing by 100 from \_\_\_\_\_ to \_\_\_\_\_



## Lesson (4): Composing and Decomposing Decimals

- You can decompose 843.572 in different ways using place-value chart :

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths
	8	4	3	.	5	7	2

- 1<sup>st</sup> way [expanded form] :

$$843.572 = 800 + 40 + 3 + 0.5 + 0.07 + 0.002$$

- 2<sup>nd</sup> way :

$$843.572 = 843 + 0.572$$

- 3<sup>rd</sup> way :

$$843.572 = 843 + 0.5 + 0.07 + 0.002$$

There are many answers that equal 843.572 when composed.



For each problem, record the number in the place value chart.  
decompose the number in expanded form and then in two other ways.

1. 34.527

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

1<sup>st</sup> way (expanded form): \_\_\_\_\_

2<sup>nd</sup> way: \_\_\_\_\_

3<sup>rd</sup> way: \_\_\_\_\_



2. 21.045

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

1<sup>st</sup> way (expanded form): \_\_\_\_\_

2<sup>nd</sup> way: \_\_\_\_\_

3<sup>rd</sup> way: \_\_\_\_\_





3. 14.932

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

1<sup>st</sup> way (expanded form): \_\_\_\_\_2<sup>nd</sup> way: \_\_\_\_\_3<sup>rd</sup> way: \_\_\_\_\_**Lesson (5): Comparing Decimals:**

Compare each set of numbers using the symbols for greater than (>), less than (<), or equal to (=).

1.  $29.9^\circ$  \_\_\_\_\_  $30.2^\circ$

4.  $35.2^\circ$  \_\_\_\_\_  $34.7^\circ$

2.  $36.5^\circ$  \_\_\_\_\_  $35.6^\circ$

5.  $38.80^\circ$  \_\_\_\_\_  $38.8^\circ$

3.  $40.5^\circ$  \_\_\_\_\_  $41.0^\circ$



Select the largest number:

1.401   1.341   1.440   1.055   1.3   1.30   1.28   1.49



Select the smallest number:

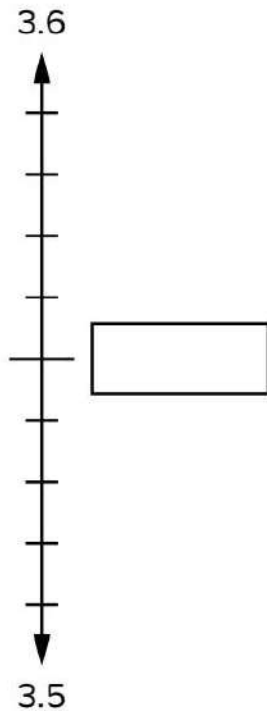
20.09   20.1   20.001   20.011   20.10   20.010   20.9   20.21



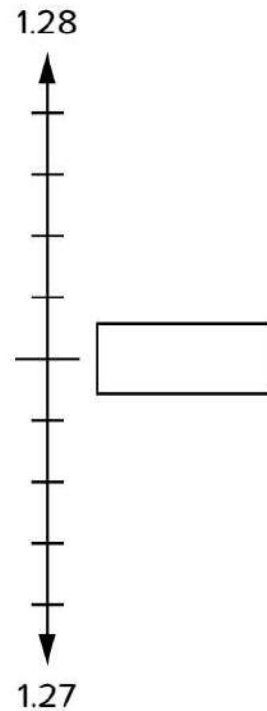
## Lesson (6): Rounding Decimals:

**Round and Round** Label the midpoint of the number lines. Place the given decimal number at its proper location.

1. Round 3.54 to the nearest Tenth.



2. Round 1.277 to the nearest Hundredth.



1. A farmer is building a new fence for her sheep field. She wants to build a fence around the whole field. Estimate how much fencing you think she will need by rounding each dimension to the nearest Tenth. Explain your thinking.

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125.45 m

89.52 m



2. Mazen is planning a trip from Cairo to the waterfall region in Wadi El Rayan. He will travel 147.72 kilometers. Round the distance to the nearest Tenth.

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3. Mazen stops to have a snack and stretch after driving 73.255 kilometers. Round the distance to the nearest Hundredth.

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4. Fill in the chart as you round the decimal to the stated place value.

Number	Round to the nearest whole number	Round to the nearest Tenth	Round to the nearest Hundredth
56.284			



# Homework

For each problem, record the number in the place value chart.  
decompose the number in expanded form and then in two other ways.

4. 231.128

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

1<sup>st</sup> way (expanded form): \_\_\_\_\_

2<sup>nd</sup> way: \_\_\_\_\_

3<sup>rd</sup> way: \_\_\_\_\_



5. 508.17

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

1<sup>st</sup> way (expanded form): \_\_\_\_\_

2<sup>nd</sup> way: \_\_\_\_\_

3<sup>rd</sup> way: \_\_\_\_\_



Compare using ">, < or =".

a. 3.204  3.24

b. 19.2  19.200

c. 20.7  20.077

d. 1.01  1.099

e. 9.08  9.079

f. 14.010   $14\frac{9}{10}$

g. 4.12   $4 + 0.1 + 0.007$

h. 5 thousandths  0.500



Choose the correct answer.

1. 3.24  3.239  
 A. > B. <  
 C. =

2. Which of the following is greater than 1.72 ?  
 A. 1.27 B. 1.07  
 C. 1.8 D. 1.072

3. 19 hundredths  19 thousandths  
 A. > B. <  
 C. =

4. Which of the following is true ?  
 A.  $0.532 > 0.537$  B.  $0.1 + 3 < 1.3$   
 C.  $1.019 > 1.1$  D.  $\frac{18}{10} = 1.8$

5.  $4 + 0.2 + 0.05 + 0.007$   4257 hundredths  
 A. > B. < C. =

6. 3.408   $\frac{348}{100}$   
 A. > B. <  
 C. =

7.  $14.1 \square 7 > 14.158$   
 A. 3 B. 4  
 C. 5 D. 6



Round each of the following numbers to the nearest whole number.

a.  $0.7 \approx$  \_\_\_\_\_

b.  $0.215 \approx$  \_\_\_\_\_

c.  $0.512 \approx$  \_\_\_\_\_

d.  $9.9 \approx$  \_\_\_\_\_

e.  $51.56 \approx$  \_\_\_\_\_

f.  $10.18 \approx$  \_\_\_\_\_

g.  $600.601 \approx$  \_\_\_\_\_

h.  $0.999 \approx$  \_\_\_\_\_

i.  $0.009 \approx$  \_\_\_\_\_





Round each of the following numbers to the nearest Tenth.

a.  $13.75 \approx$  \_\_\_\_\_

b.  $83.914 \approx$  \_\_\_\_\_

c.  $90.09 \approx$  \_\_\_\_\_

d.  $0.208 \approx$  \_\_\_\_\_

e.  $43.95 \approx$  \_\_\_\_\_

f.  $3.92 \approx$  \_\_\_\_\_

g.  $170.597 \approx$  \_\_\_\_\_

h.  $0.07 \approx$  \_\_\_\_\_

i.  $502\frac{37}{100} \approx$  \_\_\_\_\_



Round each of the following numbers to the nearest Hundredth.

a.  $76.514 \approx$  \_\_\_\_\_

b.  $52.608 \approx$  \_\_\_\_\_

c.  $52.1248 \approx$  \_\_\_\_\_

d.  $0.737 \approx$  \_\_\_\_\_

e.  $0.996 \approx$  \_\_\_\_\_

f.  $3\frac{8}{1000} \approx$  \_\_\_\_\_



Round each of the following numbers to the nearest Thousandth.

a.  $2.0509 \approx$  \_\_\_\_\_

b.  $0.0474 \approx$  \_\_\_\_\_

c.  $4.6798 \approx$  \_\_\_\_\_

d.  $19.9996 \approx$  \_\_\_\_\_

e.  $0.0004 \approx$  \_\_\_\_\_

f.  $0.9986 \approx$  \_\_\_\_\_



Round each number to the place of the underlined digit.

a.  $8.1437 \approx$  \_\_\_\_\_

b.  $52.5 \approx$  \_\_\_\_\_

c.  $35.1072 \approx$  \_\_\_\_\_

d.  $17.97 \approx$  \_\_\_\_\_

e.  $55.524 \approx$  \_\_\_\_\_

f.  $1.5698 \approx$  \_\_\_\_\_

g.  $2.4355 \approx$  \_\_\_\_\_

h.  $0.215 \approx$  \_\_\_\_\_

i.  $1.595 \approx$  \_\_\_\_\_



## Concept (1-2)

# Adding and Subtracting Decimals

### Lesson (7): Estimating Decimal Sums:

#### Estimation Strategies

(Try to use as many as you can.)

Front-End Estimation  
Round to Ones

Benchmark Decimals  
Round to Tenths

Separate Wholes and Parts  
Round to Hundredths

1.  $3.451 + 8.091$

Estimate: \_\_\_\_\_

2.  $9.98 + 4.56$

Estimate: \_\_\_\_\_

3.  $4.981 + 5.019$

Estimate: \_\_\_\_\_

4. Samar wanted to ride her bike 40 kilometers this week. By Thursday she had ridden 34.99 kilometers. On Friday she rode 4.01 kilometers. Estimate to see if she has met her goal.

Estimate: \_\_\_\_\_

5. Taha has 54.20 LE. His brother has 45.75 LE. They want to combine their money to purchase a box of apples for 100 LE. Estimate to see if they have enough money.

Estimate: \_\_\_\_\_



## Lesson (8): Modeling Decimal Addition:

The Nile is the largest river system in the world. The Nile flows north more than 6,650 kilometers into the Mediterranean Sea, and 95 percent of Egyptians live within a few kilometers of the river. The Nile has two main tributaries: The White Nile and the Blue Nile that flow into the river. The confluence of these rivers is in Khartoum, Sudan, where they join to form the Nile. The river then flows north where it meets the Mediterranean Sea.



You are traveling from where the Nile River meets the Mediterranean Sea to the confluence of the Blue and White Nile in Khartoum. This is a distance of 2,406.69 kilometers.

1. Round 2,406.69 to the nearest Thousand.
2. Round 2,406.69 to the nearest Hundred.
3. Round 2,406.69 to the nearest One.
4. Round 2,406.69 to the nearest Tenth.



1. Record 0.97 and 0.42 in the place value chart.

Thousands	Ones			•	Decimals	
O	H	T	O	•	Tenths	Hundredths

2. Evaluate:  $0.97 + 0.42 =$  \_\_\_\_\_



## Lesson (9): Thinking Like a Mathematician:

**Regroup or Not** Evaluate each sum. Identify each digit's place value. Finally, compare answers with a partner.

1. 4 Thousandths + 3 Thousandths = \_\_\_\_\_ Thousandths

Place value: \_\_\_\_\_ Hundredth(s) \_\_\_\_\_ Thousandth(s)

2. 7 Thousandths + 4 Thousandths = \_\_\_\_\_ Thousandth(s)

Place value: \_\_\_\_\_ Hundredth(s) \_\_\_\_\_ Thousandth(s)

3. 39 Thousandths + 5 Thousandths = \_\_\_\_\_ Thousandth(s)

Place value: \_\_\_\_\_ Hundredth(s) \_\_\_\_\_ Thousandth(s)

4. 3 Hundredths + 85 Thousandths = \_\_\_\_\_ Thousandth(s)

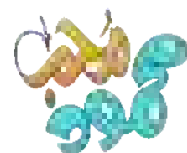
Place value: \_\_\_\_\_ Tenth(s) \_\_\_\_\_ Hundredth(s) \_\_\_\_\_ Thousandth(s)



### Add using the place value chart:

1 456.25 + 23.028 = .....

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths



2  $9,586.35 + 892.9 = \dots\dots\dots$

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths



3  $32.56 + 1,856.996 = \dots\dots\dots$

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths



4  $6,245.7 + 36.578 = \dots\dots\dots$

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths





**Find the result:**

**a**  $14.63 + 34.25 = \dots\dots\dots$

**b**  $17.3 + 4.6 = \dots\dots\dots$

**c**  $2.536 + 1.203 = \dots\dots\dots$

**d**  $0.875 + 0.43 = \dots\dots\dots$

**e**  $2.65 + 9.3 = \dots\dots\dots$

**f**  $89.75 + 4.34 = \dots\dots\dots$

**g**  $2.536 + 0.203 = \dots\dots\dots$

**h**  $5.42 + 3.362 = \dots\dots\dots$

**i**  $72.7 + 65.31 = \dots\dots\dots$

**j**  $381.5 + 76.53 = \dots\dots\dots$

**Complete the missing digits:****a**

$$\begin{array}{r} 3 . \square 7 \\ + 6 . 5 \square \\ \hline \square . 8 9 \end{array}$$

**b**

$$\begin{array}{r} 1 . \square 6 \\ + 3 . 3 \square \\ \hline \square . 3 3 \end{array}$$

**c**

$$\begin{array}{r} 3 . 2 \square \\ + 5 . \square 3 \\ \hline \square . 7 3 \end{array}$$

**d**

$$\begin{array}{r} 97 . 4 8 \\ + 43 . \square \square \\ \hline \square \square \square . 9 3 \end{array}$$

**Homework****Add using the place value chart:**

**a**  $0.8 + 3.09 = \dots\dots\dots$

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths



b)  $0.245 + 3.89 =$  .....

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths



c)  $4.028 + 2.83 =$  .....

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths



Find the result of each of the following.

a. 
$$\begin{array}{r} 0.231 \\ + 0.754 \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 2.53 \\ + 0.19 \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 4.89 \\ + 0.87 \\ \hline \end{array}$$

d. 
$$\begin{array}{r} 16.34 \\ + 8.79 \\ \hline \end{array}$$

e. 
$$\begin{array}{r} 7.51 \\ + 6.492 \\ \hline \end{array}$$

f. 
$$\begin{array}{r} 967.63 \\ + 91.2 \\ \hline \end{array}$$

g. 
$$\begin{array}{r} 48.42 \\ + 59.096 \\ \hline \end{array}$$

h. 
$$\begin{array}{r} 35.001 \\ + 14.999 \\ \hline \end{array}$$

i. 
$$\begin{array}{r} 4.15 \\ + 8.6 \\ + 9.283 \\ \hline \end{array}$$



Governorate	Number of Date Palm Trees	Typical Mass of Date Palm Trees (kg)
Alexandria	25,062	97.16
Giza	456,939	134.76
Qena	285,825	60.99
New Valley	692,491	51.66

1. Estimate the typical mass of date palms in the governorates of Alexandria and New Valley.
2. Would the combined typical mass of date palms in New Valley and Qena be greater than or less than the typical mass of the date palms in Giza?



**Find the result:**

**k**  $14.78 + 2.5 = \dots\dots\dots$

**l**  $30.33 + 3.3 = \dots\dots\dots$

**m**  $7.7 + 8.005 = \dots\dots\dots$

**n**  $22.3 + 11.415 = \dots\dots\dots$

**o**  $271.306 + 3.5 = \dots\dots\dots$

**p**  $205.7 + 99.103 = \dots\dots\dots$

**q**  $1.007 + 9 = \dots\dots\dots$

**r**  $13 + 2.65 = \dots\dots\dots$

**s**  $48.005 + 24.25 = \dots\dots\dots$

**t**  $100 + 47.85 = \dots\dots\dots$

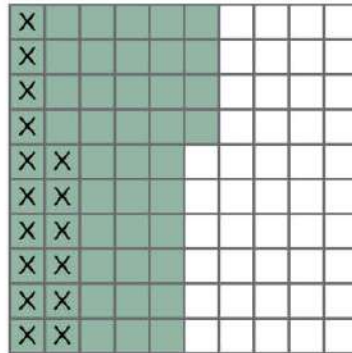
**u**  $17.007 + 12.07 = \dots\dots\dots$

**v**  $213.01 + 27.99 = \dots\dots\dots$



## Lesson (10): Subtracting Decimals:

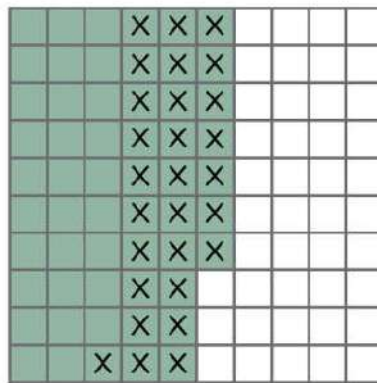
1. The shaded minuend is a decimal number. The x's represent the subtrahend, the number that is subtracted from the minuend. Use the model to solve the subtraction problem.



\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_



Write an expression to match the model. Then, use the model to evaluate the expression.



\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_



Record the problem in the place value chart:  $0.2 - 0.05 =$  \_\_\_\_\_.

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

Use the model or place value chart to evaluate the expression:

$$0.2 - 0.05 = \underline{\hspace{2cm}}$$



**Lesson (11): Estimating Decimal Differences:**

**Lesson (12): Subtracting to the thousandths Place:**

Estimate each of the following.

a.  $0.92 - 0.76$

b.  $17.01 - 13.9$

c.  $140.61 - 99.43$

---



---



---



1.  $2.419 - 1.240$  Estimate: \_\_\_\_\_

2.  $35.9 - 10.8$  Estimate: \_\_\_\_\_

3. Estimate:  $29.98 - 11.99$  \_\_\_\_\_

4. Evaluate:  $29.98 - 11.99 =$  \_\_\_\_\_





Find the result of each of the following.

a.  $5.473 - 3.362 =$  \_\_\_\_\_

b.  $2.536 - 1.203 =$  \_\_\_\_\_

c.  $6.4 - 5.378 =$  \_\_\_\_\_

d.  $100 - 47.85 =$  \_\_\_\_\_

e.  $0.9 - 0.889 =$  \_\_\_\_\_

f.  $12.74 - 0.359 =$  \_\_\_\_\_



Choose the correct answer.

1.  $137.234 - 37.04 =$  \_\_\_\_\_

- A. 133.530      B. 99.166  
C. 100.194      D. 100.230

2.  $45.9 - 20.76$  estimate \_\_\_\_\_

- A. 18      B. 25  
C. 31      D. 35

3. 7 Tenths – 7 Thousandths = \_\_\_\_\_

- A. 0.693      B. 0.63  
C. 6.3      D. Zero

4.  $24.5 - 18.92 =$  \_\_\_\_\_

- A. 5.58      B. 5.63  
C. 5.6      D. 6.5

5.  $77.55 - 1.9$  ○  $76.21 - 0.8$

- A. >      B. <  
C. =

6.  $99.9 - 9.99 =$  \_\_\_\_\_

- A. 90.09      B. 90.9  
C. 89.19      D. 89.91

7.  $94. \square 8 - 9.82 = 84.46$

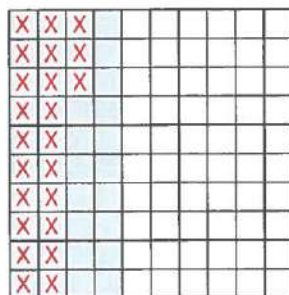
- A. 1      B. 2  
C. 3      D. 4

8.  $9 - 4.653 =$  \_\_\_\_\_

- A. 5.347      B. 4.347  
C. 3.347      D. 5.653

9. Which of the following expressions represents the model?

- A.  $0.23 - 0.04$   
B.  $0.4 - 0.23$   
C.  $0.04 - 0.023$   
D.  $40 - 23$



10.  $9.3 -$  \_\_\_\_\_  $= 8.254$

- A. 1.146  
B. 1.46  
C. 1.046  
D. 17.554



### Lesson (13): Decimal Story Problems:

Mazen has 35 L.E. He bought a ball for 9.75 L.E. and a book for 8.40 P.T.


How much money was left with Mazen ?



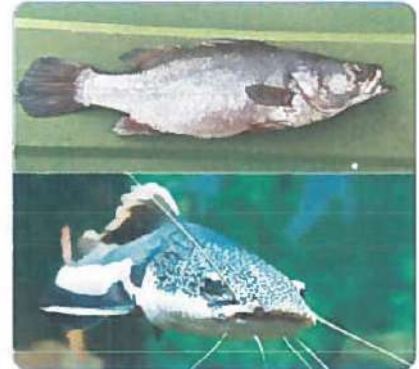
Hanaa has 200 pounds. She wants to buy a pair of shoes for 99.8 L.E. , a bag for 45.75 L.E. and a dress for 70.25 L.E.

Can she buy all what she wants ? Why ?



 Nile perch is 110 centimeters long and more than 5 years old. It weighs 113.39 kilograms and the vundu catfish weighs 38.1 kilograms and is 188 centimeters long.

What is the total mass of both the Nile perch and the vundu catfish ?



Wael has 14.75 pounds and his sister Mariam has 950 piasters.

Find the difference between what they have in pounds.



# Homework

**Subtract using the place value chart:**

Complete the table.

The expression	Estimating difference	Actual difference
a. $3.94 - 1.23 =$	_____	_____
b. $29.98 - 11.99 =$	_____	_____
c. $0.97 - 0.82 =$	_____	_____
d. $5.05 - 4.15 =$	_____	_____
e. $4.45 - 4.32 =$	_____	_____



Find the result of each of the following.

a.

$$\begin{array}{r} 0.781 \\ - 0.531 \\ \hline \end{array}$$

b.

$$\begin{array}{r} 0.593 \\ - 0.194 \\ \hline \end{array}$$

c.

$$\begin{array}{r} 0.5 \\ - 0.375 \\ \hline \end{array}$$

d.

$$\begin{array}{r} 3,218.975 \\ - 2,188.853 \\ \hline \end{array}$$

e.

$$\begin{array}{r} 4,524.62 \\ - 2,498.124 \\ \hline \end{array}$$

f.

$$\begin{array}{r} 4,611.3 \\ - 1,982.45 \\ \hline \end{array}$$



Mona has 3.95 L.E.

and Manal has 6.3 L.E.

How much do they have together ?



A man bought some goods for 306.7 L.E.  
and sold them for 366.95 L.E.

Find his profit.



Ibrahim had 53.75 L.E. He spent 35.05 L.E.

Find the remainder with him.



Ali has 24.75 L.E. and Ahmed has  $15\frac{1}{4}$  L.E.

Find how much money Ali and Ahmed  
have together.



Hossam has 4.25 L.E. and his sister  
Hend has 980 P.T.

Find the difference between what they have in pounds.







UNIT

2

Theme 1 | Number Sense and Operations

# Unit 2

## Number Relationships

Photo Credit: Mountains Hunter / Shutterstock.com





## Concept (2-1)

# Expressions, Equations and the Real World

### Lesson (1): Expressions, Equations, and Variables:

#### Mathematical Expression

Mathematical expression is a statement contains numbers or numbers and symbols separated by one or more operations as :  $[+ , - , \times \text{ and } \div]$  and doesn't contain the equal sign " $=$ ".

► **Examples :**

- $7.4 + 2.5 - 1.5$       •  $49 - x - 24.5$
- $10 \times 3 \div 5$         •  $42 \div k$
- $2.5 + m$              •  $15 \div 3 \times 2$

#### Equation

Equation is a mathematical expression contains the equal sign " $=$ ".

► **Examples :**

- $24.8 - x = 17.5$
- $36.5 + 14.1 = k$
- $4.2 + 1.5 = 8.9 - 3.2$



1. Basma wanted to write an equation with a variable to represent "12.5 plus a number equals 15." Which of the following would be correct?

- A.  $12.5 + 15 = x$
- B.  $12.5 + x = 15$
- C.  $15 + x = 12.5$
- D.  $15 - x = 12.5$



3. If Farha knew that the sum of the heights of two sand dunes is 46 meters and one of the dunes is 18.25 m high, which equation could she write to find the unknown height? Select the two correct answers.

- A.  $18.25 + x = 46$
- C.  $46 - 18.25 = x$
- B.  $18.25 + 46 = x$
- D.  $x - 18.25 = 46$



Write "equation, expression or neither" in front of each statement.

- a. Hany saves 15 L.E. every day. What does Hany save in the week ? [ \_\_\_\_\_ ]
- b.  $2.45 + 13.12 - 5$  [ \_\_\_\_\_ ]
- c.  $1.8 + x = 2.8$  [ \_\_\_\_\_ ]
- d.  $3.6 + 1.4 = 5$  [ \_\_\_\_\_ ]
- e.  $35.45 - k = 15$  [ \_\_\_\_\_ ]
- f. The sum of two numbers is 13.8 [ \_\_\_\_\_ ]



## Lesson (2): Variables in Equations:

You can solve equation in many ways :

### ① Mental math

Example :  $15 + x = 18$

What number plus 15 equals 18 ?

The answer is 3

, then  $x = 3$

### ② Inverse operation

Example :  $y - 3.45 = 1.32$

$$y - 3.45 = 1.32$$

Inverse operation

, then  $y = 1.32 + 3.45 = 4.77$

### ③ Using bar model

Example :  $4.76 - b = 2.25$

4.76	
b	2.25

$$b = 4.76 - 2.25 = 2.51$$



1.  $8.23 + p = 10.24$

$p =$  \_\_\_\_\_

2.  $T - 2.45 = 0.26$

$T =$  \_\_\_\_\_

3.  $2.45 + n = 5.24$

$n =$  \_\_\_\_\_

5.  $h - 6.82 = 1.23$

$h =$  \_\_\_\_\_

6.  $j - 12.40 = 3.01$

$j =$  \_\_\_\_\_

7.  $5.52 + 2.01 + m = 9.21$

$m =$  \_\_\_\_\_



Solve the following equations, create a bar model to solve the following problems.

a.  $m - 4.25 = 11.75$


b.  $a + 19.5 = 30.8$


c.  $1.2 = 2.4 - r$


d.  $8.76 = 5.35 + w$




Solve each of the following equations using inverse operation strategy.

a.  $76.85 + q = 90.96$

\_\_\_\_\_

b.  $v + 123.25 = 150.53$

\_\_\_\_\_

c.  $h - 15.32 = 7.83$

\_\_\_\_\_



### Lesson (3): Finding the Unknown:

Whole:	
Part:	Part:



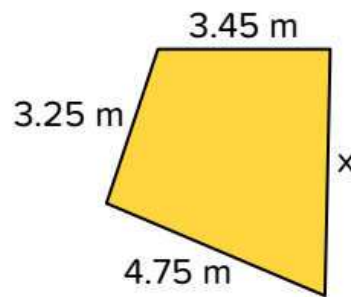
A truck carries 1.35 ton of fruits and 2.456 ton of vegetables. What is the total load of the truck ?

\_\_\_\_\_

\_\_\_\_\_



**Variables in Perimeter** If the perimeter of this shape is 16.70 meters, what does  $x$  equal?



1. Basem is taking a bus from Cairo to Ras Muhammad National Park to visit the coral reefs. The total journey is 492.64 kilometers. After 396.48 km, the bus stops in El Tor to pick up more passengers. How far is El Tor from Ras Muhammad National Park?



### Lesson (4): Telling Stories with Numbers:

Write a story problem for the equation, then solve it.

$$x + 1.357 = 2.18$$

---

---

---



What is the story ?

Write a story problem for each of the following equations, then solve it.

a.  $5.25 + 3.8 = n$

---



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b.  $7.85 - 3.685 = y$

---



---



## Homework

Mark (✓) for the correct answer.

	Equation	Expression	Neither
$3.6 + x + 5.45$			
$2 + 3 = 4 + 1$			
$35.6 + 4.23 = x$			
Sum of two numbers is 15			
$8.43 - 2.34 = y + 2.85$			
15.68 more than a number			
$k - 15.8 + 7.18$			



- Is  $4.5 + 6.25 = x$  the same as  $4.5 + 6.25 = M$ ? Why or why not?
- Is  $2.34 + 6 = 1.34 + 7$ ? Why or why not?





Solve the following equations, create a bar model to solve the following problems.

e.  $3.45 + n = 6.75$


f.  $17.22 - m = 15.17$


g.  $2.53 + 4.38 + x = 12.76$


h.  $15.38 + c = 9.23 + 16.3$




Solve each of the following equations using inverse operation strategy.

a.  $8.23 + p = 10.24$

$p =$  \_\_\_\_\_

b.  $t - 2.45 = 0.26$

$t =$  \_\_\_\_\_

c.  $2.45 + n = 5.24$

$n =$  \_\_\_\_\_

d.  $v + 42.89 = 100.01$

$v =$  \_\_\_\_\_

e.  $h - 6.82 = 1.23$

$h =$  \_\_\_\_\_

f.  $j - 12.40 = 3.01$

$j =$  \_\_\_\_\_



2. Basem and his friend Jana were snorkeling in Ras Muhammad National Park on the coral reef. Basem saw a hawksbill sea turtle that was 0.78 meter long. Jana saw a green turtle that was 0.58 m longer. How long was the green turtle?



**What Is the Story?**

1. Write a story problem for the equation and then solve:  $x + 2.75 = 12.5$ .
  
2. Write a story problem for the equation and then solve:  $124.6 - 72.25 = m$ .
  
3. Write a story problem for the equation and then solve:  $34.750 - s = 15.25$ .



## Concept (2-2)

# Factors and Multiples

### Lesson (5): Finding Factors:

**Crossing Sinai** Read the passage and respond to the questions.



**Beach Resort**

Most cities in Sinai are along the coast of Sinai Peninsula. Some of the cities are popular holiday destinations.

1. A bicycle race was planned from Sharm El Sheikh to Taba along the Gulf of Aqaba. The distance by road is about 220 kilometers. The riders wanted to break up the ride into equal, whole-kilometer portions for rest and water stops. Which of the following distances would divide the entire ride into equal, whole-kilometer distances? Choose the two distances that the riders could use.

A. 10 km      B. 12 km      C. 20 km      D. 25 km      E. 50 km

2. What other ways could the distance be divided into equal parts?

---

---



Select Yes or No to indicate whether each value is a factor of the given number.

Number	Is 2 a factor?	Is 5 a factor?	Is 4 a factor?
A. 40	Yes No	Yes No	Yes No
B. 12	Yes No	Yes No	Yes No
C. 35	Yes No	Yes No	Yes No
D. 17	Yes No	Yes No	Yes No



List all of the factors of 15.



Azza was traveling from St. Katherine to El Tor on the coast. She made 24 cookies for the trip and wants to put them into bags for her siblings. Choose the set that lists ways she could divide the cookies into bags without any leftovers.

A. 2, 4, 5, 6, and 8 bags

C. 2, 3, 4, 6, 8, and 12 bags

B. 3, 5, 7, 10, and 12 bags

D. 3, 4, 6, 10, and 12 bags



## Lesson (6): Prime Factorization:

The following table shows the prime numbers which lie between 1 and 100 :

2	3	5	7	11	13	17	19	23
29	31	37	41	43	47	53	59	61
	67	71	73	79	83	89	97	





Complete the factor trees by filling in the missing factors in your journal or using the digital tool.



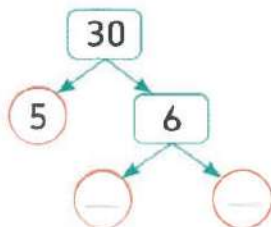
- Complete each of the factor trees (one of the factors is already listed).
- Decompose the composite factors until only prime numbers remain.
- Circle the prime factors. Draw a square around the composite factors.
- Record the prime factorization for each factor tree.

(Example:  $24 = 2 \times 2 \times 2 \times 3$ )



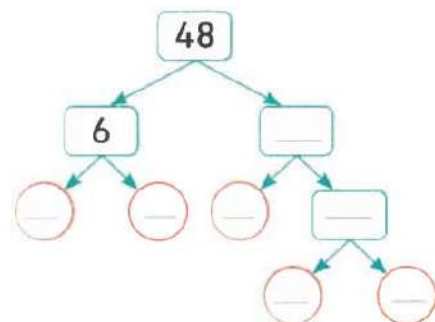
Factorize to prime factors.

a.



$$30 = \_ \times \_ \times \_$$

b.



$$48 = \_ \times \_ \times \_ \times \_ \times \_$$





**Products of Prime Factors** Find the product of the prime factorization listed. Then, list all other factors of the product.

1.  $2 \times 2 \times 5 =$  \_\_\_\_\_

Other factors:

2.  $2 \times 3 \times 7 =$  \_\_\_\_\_

Other factors:

3.  $2 \times 2 \times 2 \times 7 =$  \_\_\_\_\_

Other factors:



## Lesson (7): Greatest Common Factors:

How can you find the greatest common factor of 18 and 24 [GCF] ?

You can find the greatest common factor in two ways :

### First way using listing method :



18		24	
①	18	①	24
②	9	②	12
③	6	③	8
		④	6

You studied this method in primary 4



#### Remember

- A **common factor** of two numbers is a factor of each of these numbers.
- The **greatest common factor (GCF)** of two numbers is the greatest number that is a factor of both.

- Factors of 18 : 1 , 2 , 3 , ~~6~~ , 9 , 18
- Factors of 24 : 1 , 2 , 3 , 4 , ~~6~~ , 8 , 12 , 24
- Common factors : 1 , 2 , 3 , 6
- The greatest common factor [GCF] : 6

## Second way using prime factorization :

1

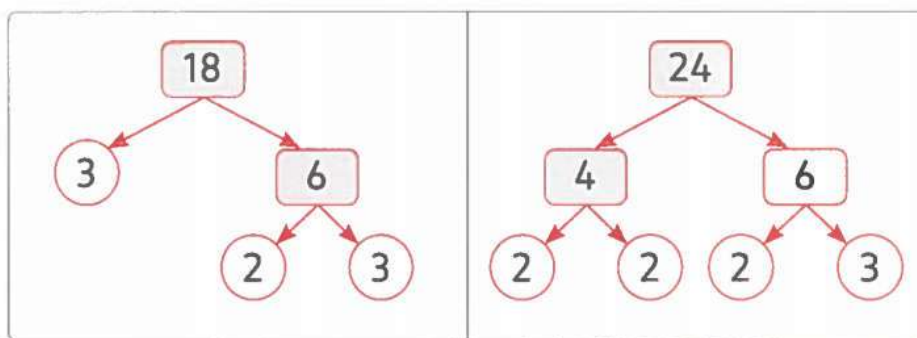
Factorize each number to its prime factors.

2

Find the common prime factors.

3

Find the product of these common prime factors.



$$18 = 2 \times 3 \times 3$$

$$24 = 2 \times 3 \times 2 \times 2$$

$$\text{GCF} = 2 \times 3 = 6$$



Find the GCF of 36 and 54

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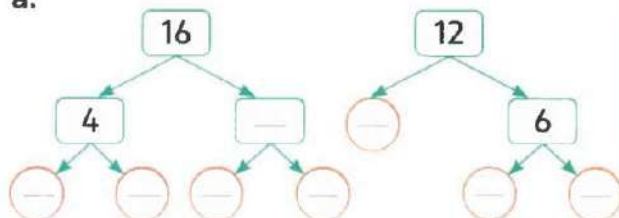


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Find the prime factorization, then find the GCF

a.

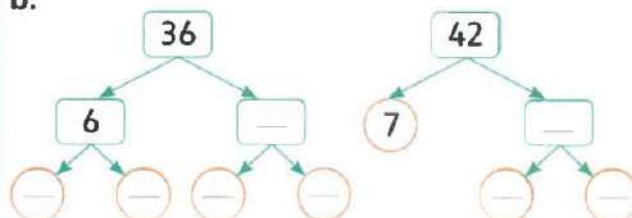


$$16 = \underline{\hspace{2cm}}$$

$$12 = \underline{\hspace{2cm}}$$

$$\text{GCF} = \underline{\hspace{2cm}}$$

b.



$$36 = \underline{\hspace{2cm}}$$

$$42 = \underline{\hspace{2cm}}$$

$$\text{GCF} = \underline{\hspace{2cm}}$$



# Homework

Fill in the missing factors represented by the variables.

$4 \times m = 16$

$m = \underline{\hspace{2cm}}$

$v \times 15 = 45$

$v = \underline{\hspace{2cm}}$

$6 \times t = 42$

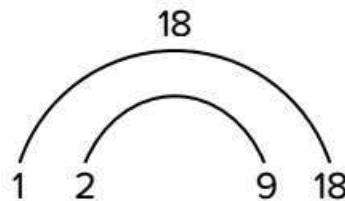
$t = \underline{\hspace{2cm}}$

$p \times 9 = 72$

$p = \underline{\hspace{2cm}}$



Ahmed created this factor rainbow for 18. What factors did he forget?



A. 8 and 10

B. 5 and 3

C. 4 and 4

D. 3 and 6



Circle the factors of the numbers listed.

a. 15:      2      5      10

c. 12:      2      5      10

b. 30:      2      5      10

d. 25:      2      5      10

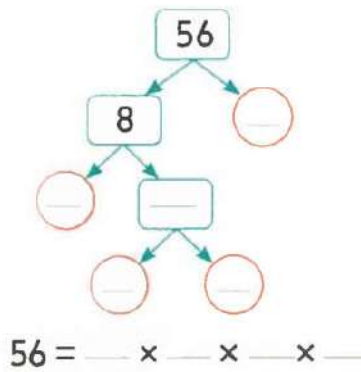
e. 16:      1      2      3      4      5      6      7      8      9      10

f. 20:      1      2      3      4      5      6      7      8      9      10

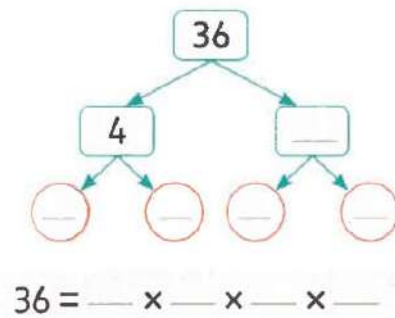


Factorize to prime factors.

a.

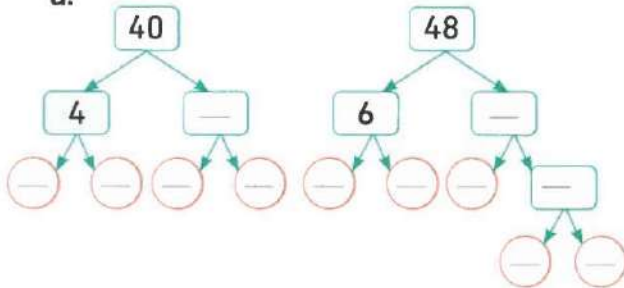


b.



Find the prime factorization, then find the GCF

a.

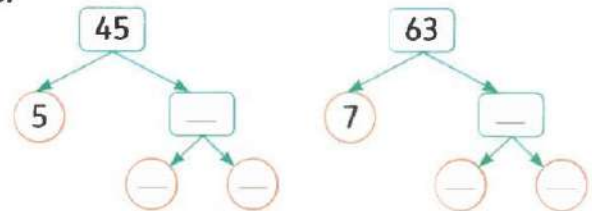


40 = \_\_\_\_\_

48 = \_\_\_\_\_

GCF = \_\_\_\_\_

b.



45 = \_\_\_\_\_

63 = \_\_\_\_\_

GCF = \_\_\_\_\_

Choose the correct answer.

1. The GCF of 7 and 56 is \_\_\_\_\_

- A. 1                      B. 56  
C. 7                      D. 14

2. The GCF of 18 and 27 is \_\_\_\_\_

- A. 1                      B. 3  
C. 6                      D. 9

3. The GCF of 20 and 30

is \_\_\_\_\_

- A. 1                      B. 4  
C. 5                      D. 10

4. The common factor of all numbers

is \_\_\_\_\_

- A. 0                      B. 1  
C. 2                      D. 3





## Lesson (8): Identifying Multiples:

1. List the first five multiples of 6. \_\_\_\_\_
2. List the first six multiples of 7. \_\_\_\_\_
3. List eight multiples of 10. \_\_\_\_\_



4. Adel is buying cartons of eggs and bottles of juice at the supermarket to make breakfast for friends. Each carton contains 12 eggs. Complete the chart for Adel.

Cartons	1	2	3	4	5	6
Eggs	12					



5. The juice comes in packs of 9. Complete the chart for Adel.

Packs	1	2	3	4	5	6
Juice	9					

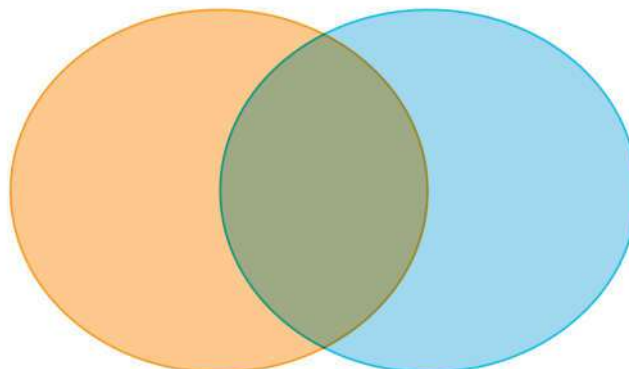


6. If Adel is buying enough eggs and juice for 36 people, how many cartons of eggs and packs of juice will he need to buy for each guest to have 1 egg and 1 juice?



Multiples of 3

Multiples of 4





Select the three numbers that are NOT common multiples of 5 and 7.

- |       |       |        |
|-------|-------|--------|
| A. 14 | C. 35 | E. 70  |
| B. 21 | D. 55 | F. 105 |



Select the three numbers for which 24 and 32 are common multiples.

- |      |      |      |
|------|------|------|
| A. 2 | C. 4 | E. 7 |
| B. 3 | D. 6 | F. 8 |



### Lesson (9): Least common Multiple:

prime	factor	one
composite number	product	multiples

1. A \_\_\_\_\_ is a number with more than one set of factor pairs.
2. A \_\_\_\_\_ is a number multiplied by another number to find a product.
3. Skip counting is a way to find \_\_\_\_\_ of a number.
4. \_\_\_\_\_ is a factor of all numbers.
5. A \_\_\_\_\_ number's only factor pair is one and itself.
6. A \_\_\_\_\_ is the answer to a multiplication problem.



**Least Common Multiple** List at least three multiples of each number, then find the least common multiple (LCM) for each pair of numbers. If you do not find the LCM in the first three multiples, continue to list multiples until you find one.

1. 6 and 9

Multiples of 6: \_\_\_\_\_

Multiples of 9: \_\_\_\_\_

LCM: \_\_\_\_\_

2. 2 and 3

Multiples of 2: \_\_\_\_\_

Multiples of 3: \_\_\_\_\_

LCM: \_\_\_\_\_



3. 10 and 5

Multiples of 10: \_\_\_\_\_

Multiples of 5: \_\_\_\_\_

LCM: \_\_\_\_\_

5. 5 and 11

Multiples of 5: \_\_\_\_\_

Multiples of 11: \_\_\_\_\_

LCM: \_\_\_\_\_



4. 3 and 8

Multiples of 3: \_\_\_\_\_

Multiples of 8: \_\_\_\_\_

LCM: \_\_\_\_\_

6. 5 and 6

Multiples of 5: \_\_\_\_\_

Multiples of 6: \_\_\_\_\_

LCM: \_\_\_\_\_



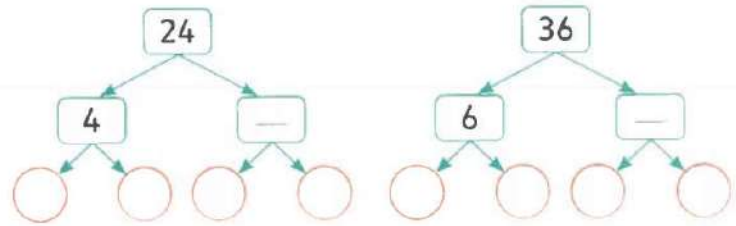
Find the least common multiple.

a. 24 and 36

$$24 = \_ \times \_ \times \_ \times \_$$

$$36 = \_ \times \_ \times \_ \times \_$$

$$\text{LCM} = \_ \times \_ \times \_ \times \_$$



f. 12, 9 and 18

$$12 = \_ \times \_ \times \_ \times \_$$

$$9 = \_ \times \_ \times \_ \times \_$$

$$18 = \_ \times \_ \times \_ \times \_$$

$$\text{LCM} = \_ \times \_ \times \_ \times \_$$



1. Badr is buying kofta and aish baladi for his birthday party. The kofta is sold in packages of 3. The bakery sells the aish baladi in packages of 12. Badr wants to have exactly the same number of each. What is the minimum number of kofta and aish baladi he should buy?

Package	1					
Kofta	3					

Package	1					
Aish Baldi	12					



2. Hend and Jana are biking around a small lake. Hend makes a complete lap around the lake in 6 minutes. It takes her younger sister, Jana, 8 minutes to finish one lap. If Hend and Jana continue to bike around the lake at the same rate, how many minutes will it take for them to come together at the starting point again?

Lap	1					
Hend	6					

Lap	1					
Jana	8					

## Lesson (10): Factors or Multiples?

**Greatest and Least** Find the GCF and LCM for each number pair.

1. 12 and 10

GCF: \_\_\_\_\_ LCM: \_\_\_\_\_

2. 9 and 5

GCF: \_\_\_\_\_ LCM: \_\_\_\_\_

3. 11 and 2

GCF: \_\_\_\_\_ LCM: \_\_\_\_\_

4. 8 and 4

GCF: \_\_\_\_\_ LCM: \_\_\_\_\_

5. 9 and 12

GCF: \_\_\_\_\_ LCM: \_\_\_\_\_





1. Omnia has two strips of cloth. One is 35 centimeters wide, and the other is 75 cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips? Do you have to find the GCF or the LCM? What is the answer?



2. Omar exercises every 12 days. Rana exercises every 8 days. Both friends exercised together today. How many days will it be until they exercise together again? Do you have to find the GCF or the LCM? What is the answer?



3. Menna is giving her friends pencils and special erasers. The store sells pencils in boxes of 8 and erasers in boxes of 10. If Menna wants the same number of each, what is the minimum number of pencils that she will have to buy? Do you have to find the GCF or the LCM? What is the answer?



## Homework

2. Complete using "Yes" or "No".

a. Is 34 a multiple of 9? \_\_\_\_\_

b. Is 40 a multiple of 8? \_\_\_\_\_

c. Is 35 a multiple of 4? \_\_\_\_\_

d. Is 30 a multiple of 2? \_\_\_\_\_

e. Is 7 a multiple of 7? \_\_\_\_\_

f. Is 81 a multiple of 9? \_\_\_\_\_



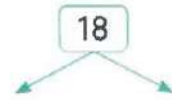
Find the least common multiple.

b. 15 and 18

15 = \_\_\_\_\_

18 = \_\_\_\_\_

LCM = \_\_\_\_\_

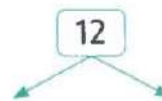


c. 12 and 9

12 = \_\_\_\_\_

9 = \_\_\_\_\_

LCM = \_\_\_\_\_



d. 32 and 48

32 = \_\_\_\_\_

48 = \_\_\_\_\_

LCM = \_\_\_\_\_



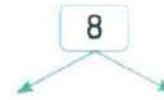
e. 6, 9 and 8

6 = \_\_\_\_\_

9 = \_\_\_\_\_

8 = \_\_\_\_\_

LCM = \_\_\_\_\_



4. Nour is making snack bags for an upcoming trip. He has 6 oranges and 12 pieces of dried fruit. He wants the snack bags to be identical without any food left over. What is the greatest number of snack bags Nour can make? Do you have to find the GCF or the LCM? What is the answer?



5. Malak baked 30 servings of cakes and 48 servings of baklava for her family. She wants to divide the desserts into containers so that each person receives the same number of servings. How many containers will she need? Do you have to find the GCF or the LCM? What is the answer?



6. Ola sells baskets of figs that each hold 9. She also sells bags of pomegranates that each hold 7. If she sells the same number of each, what is the smallest quantity of each type of fruit that she sold? Do you have to find the GCF or the LCM? What is the answer?



Choose the correct answer.

1. 20 is a multiple of \_\_\_\_\_

☐ A. 3                      B. 6  
☐ C. 8                      D. 10

2. Which of the following is a multiple of 5?

☐ A. 23                      B. 40  
☐ C. 51                      D. 64

3. Which of the following is a multiple of 9?

☐ A. 3                      B. 45  
☐ C. 56                      D. 89

4. Which is NOT a multiple of 6?

☐ A. 0                      B. 30  
☐ C. 20                      D. 42



5. Which of the following is NOT a multiple of 10?

- A. 10                      B. 20  
C. 35                      D. 50

6. Which is a common multiple of 5 and 8?

- A. 20                      B. 40  
C. 35                      D. 45

7. Which is NOT a common multiple of 9 and 6?

- A. 18                      B. 54  
C. 36                      D. 42

8. The common multiple for all numbers is \_\_\_\_\_

- A. 0                      B. 1  
C. 2                      D. 4



Find the GCF and LCM for each of the following numbers.

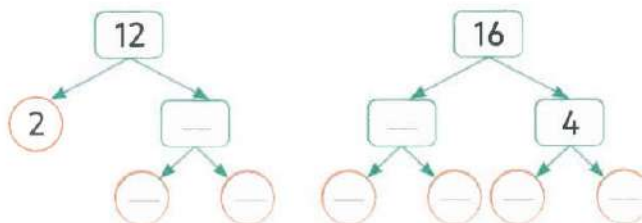
a. 12 and 16

12 = \_\_\_\_\_

16 = \_\_\_\_\_

GCF = \_\_\_\_\_

LCM = \_\_\_\_\_



b. 18 and 20

18 = \_\_\_\_\_

20 = \_\_\_\_\_

GCF = \_\_\_\_\_

LCM = \_\_\_\_\_



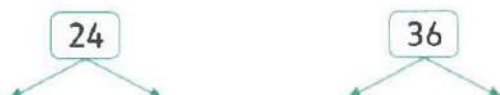
c. 24 and 36

24 = \_\_\_\_\_

36 = \_\_\_\_\_

GCF = \_\_\_\_\_

LCM = \_\_\_\_\_







UNIT

3

Theme 1 | Number Sense and Operations

# Unit 3

## Multiplication with Whole Numbers



## Concept (3-1)

### Models for Multiplication

#### Lesson (1): The Power of Ten:

**Jumping by Powers of Ten** Solve.

1.  $8 \times \underline{\hspace{2cm}} = 8,000$
2.  $3 \times 10,000 = \underline{\hspace{2cm}}$
3.  $\underline{\hspace{2cm}} \times 9 = 900$
4.  $2 \times \underline{\hspace{2cm}} = 200,000$
5.  $1,000 \times 6 = \underline{\hspace{2cm}}$



**Matching Expressions** Choose from the given expressions to enter the one that is equal to the number.

$5 \times 100$

$10 \times 5$

$100,000 \times 5$

$5 \times 1,000$

$5 \times 10,000$

A. 50,000  $\underline{\hspace{2cm}}$

B. 500  $\underline{\hspace{2cm}}$

C. 5,000  $\underline{\hspace{2cm}}$

D. 50  $\underline{\hspace{2cm}}$

E. 500,000  $\underline{\hspace{2cm}}$





1. A crate of mangoes weighs 9 kilograms. How many kilograms would 1,000 crates weigh?



Use basic facts and patterns to find each product.

a.  $3 \times 1 = \square$   
 $3 \times 10 = \square$   
 $3 \times 100 = \square$   
 $3 \times 1,000 = \square$   
 $3 \times 10,000 = \square$

b.  $14 \times 1 = \square$   
 $14 \times 10 = \square$   
 $14 \times 100 = \square$   
 $14 \times 1,000 = \square$   
 $14 \times 10,000 = \square$

c.  $50 \times 1 = \square$   
 $50 \times 10 = \square$   
 $50 \times 100 = \square$   
 $50 \times 1,000 = \square$   
 $50 \times 10,000 = \square$



Fill in the blanks below.

a. 5 cm = \_\_\_\_\_ mm

b. 2 kg = \_\_\_\_\_ g

c. 7 L = \_\_\_\_\_ mL

d. 6 m = \_\_\_\_\_ cm

e. 10 km = \_\_\_\_\_ meters

f. 9 kilometers = \_\_\_\_\_ cm



## Lesson (2): Using the Area Model to Multiply:

**Multiplying Tens** How many times will 10 need to be multiplied by itself to equal each given number?

1. 100
2. 1,000
3. 10,000
4. 100,000




**Whiteboard: Expanding Equations**

Work with your teacher and classmates to create area models and find each product.

1.  $374 \times 62 =$  \_\_\_\_\_

2.  $506 \times 42 =$  \_\_\_\_\_

$$374 \times 62$$

70

2	140	8

$$506 \times 42$$



**Decompose with Area Model** Eman is planting a garden. She wants to find the area of the garden to know how much topsoil she will need. The garden is 46 meters long and 24 m wide. How many different ways can you decompose the numbers to help her find the area?

$$46 \times 24 =$$
 \_\_\_\_\_

Example:

	20	20	6
20			
4			



Complete each of the following area models.

a.

	30	8
10		
6		

b.

	50	4
20		
3		





c.

80	100	70	5
2			

d.

50	300	60	1
6			



### Lesson (3): The Distributive Property of Multiplication:

Use the Distributive Property of Multiplication and area model to find the product of each of the following.

a.  $14 \times 27 = \underline{\hspace{2cm}}$

$$[10 \times 20] + [10 \times \underline{\hspace{1cm}}] + [\underline{\hspace{1cm}} \times 20] + [4 \times \underline{\hspace{1cm}}] = \underline{\hspace{2cm}}$$

	20	7
10	200	70
4	80	28



$58 \times 42 = \underline{\hspace{2cm}}$

$$[40 \times \underline{\hspace{1cm}}] + [40 \times 8] + [\underline{\hspace{1cm}} \times 50] + [2 \times \underline{\hspace{1cm}}] = \underline{\hspace{2cm}}$$

	50	8
40	2,000	320
2	100	16



$19 \times 62 = \underline{\hspace{2cm}}$

$$[10 \times \underline{\hspace{1cm}}] + [\underline{\hspace{1cm}} \times 2] + [\underline{\hspace{1cm}} \times 60] + [9 \times \underline{\hspace{1cm}}] = \underline{\hspace{2cm}}$$

	60	2
10	600	20
9	540	18



## Lesson (4): Using the Partial Products Model to Multiply:

Find the product using the partial products.

a.

$$\begin{array}{r} 45 \\ \times 72 \\ \hline \end{array}$$

← [ — × — ]  
 + ← [ — × — ]  
 + ← [ — × — ]  
 + ← [ — × — ]

b.

$$\begin{array}{r} 564 \\ \times 35 \\ \hline \end{array}$$

← [ — × — ]  
 + ← [ — × — ]  
 + ← [ — × — ]  
 + ← [ — × — ]  
 + ← [ — × — ]  
 + ← [ — × — ]



## Homework

2. If 10 millimeters makes 1 centimeter, how many millimeters are in 7 centimeters?



3. There are 1,000 milliliters in 1 liter. Omar bought a 2-liter bottle of juice. How many milliliters are in the bottle?



4. Aya ran a 5-kilometer race on Saturday. If there are 1,000 meters in 1 kilometer, how many meters did she run?



Find each product of the following.

a.  $3 \times 10 =$  \_\_\_\_\_

c.  $1,000 \times 6 =$  \_\_\_\_\_

e.  $2 \times 100,000 =$  \_\_\_\_\_

g.  $10 \times 18 =$  \_\_\_\_\_

i.  $13 \times 1,000 =$  \_\_\_\_\_

k.  $100 \times 12 =$  \_\_\_\_\_

m.  $15 \times 100,000 =$  \_\_\_\_\_

b.  $6 \times 100 =$  \_\_\_\_\_

d.  $3 \times 10,000 =$  \_\_\_\_\_

f.  $10,000 \times 5 =$  \_\_\_\_\_

h.  $30 \times 100 =$  \_\_\_\_\_

j.  $70 \times 10,000 =$  \_\_\_\_\_

L.  $60 \times 1,000 =$  \_\_\_\_\_

n.  $80 \times 100,000 =$  \_\_\_\_\_



Fill in the blanks below.

a.  $7 \text{ cm} =$  \_\_\_\_\_  $\text{mm}$

c.  $8 \text{ L} =$  \_\_\_\_\_  $\text{mL}$

e.  $5 \text{ kg} =$  \_\_\_\_\_  $\text{g}$

g.  $7 \text{ km} =$  \_\_\_\_\_  $\text{cm}$

b.  $3 \text{ km} =$  \_\_\_\_\_  $\text{m}$

d.  $9 \text{ m} =$  \_\_\_\_\_  $\text{cm}$

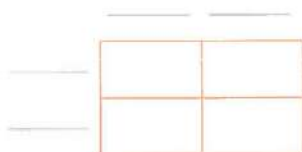
f.  $20 \text{ L} =$  \_\_\_\_\_  $\text{mL}$

h.  $50 \text{ m} =$  \_\_\_\_\_  $\text{mm}$

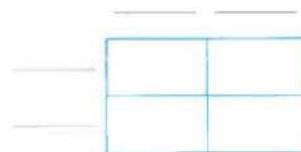


Expanding Equations. Create an area model for each of the following problems and find each product.

a.  $21 \times 64 =$  \_\_\_\_\_

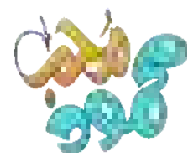


b.  $103 \times 72 =$  \_\_\_\_\_



$$[20 \times 30] + [\text{---} \times \text{---}] + [\text{---} \times \text{---}] + [4 \times 7] = \text{---}$$

	30	7
20	600	140
4	120	28



	30	4
50	_____	200
_____	210	_____



a.

$$\begin{array}{r} 76 \\ \times 32 \\ \hline \end{array}$$

$\text{---} \leftarrow [30 \times 70]$   
 $+ \text{---} \leftarrow [30 \times 6]$   
 $+ \text{---} \leftarrow [2 \times 70]$   
 $+ \text{---} \leftarrow [2 \times 6]$

**b.** 

$$\begin{array}{r} 97 \\ \times 68 \\ \hline \end{array}$$

\_\_\_\_\_  $\leftarrow [60 \times 90]$   
 + \_\_\_\_\_  $\leftarrow [60 \times 7]$   
 + \_\_\_\_\_  $\leftarrow [8 \times 90]$   
 + \_\_\_\_\_  $\leftarrow [8 \times 7]$

C.

$$\begin{array}{r} 37 \\ \times 54 \\ \hline \end{array}$$

\_\_\_\_\_  $\leftarrow [4 \times 7]$   
 + \_\_\_\_\_  $\leftarrow [4 \times 30]$   
 + \_\_\_\_\_  $\leftarrow [50 \times 7]$   
 + \_\_\_\_\_  $\leftarrow [50 \times 30]$

[illegible]



## Concept (3-2)

# Multiplying 4-Digit Number by 2-Digit Number

## Lesson (5): What Is an Algorithm?

### Step 1

Multiply by ones.

$$\begin{array}{r} \textcircled{2}\textcircled{1}\textcircled{2} \\ 1,625 \\ \times \quad 24 \\ \hline 6,500 \end{array} \leftarrow [4 \times 1,625]$$

### Step 2

Multiply by tens.

$$\begin{array}{r} \textcircled{1}\textcircled{1} \\ \textcircled{2}\textcircled{1}\textcircled{2} \\ 1,625 \\ \times \quad 24 \\ \hline 6,500 \\ 32,500 \end{array} \leftarrow [20 \times 1,625]$$

### Step 3

Add the products.

$$\begin{array}{r} 1,625 \\ \times \quad 24 \\ \hline \textcircled{1} 6,500 \\ + 32,500 \\ \hline 39,000 \end{array}$$




Area Model	Partial Products Model	Standard Algorithm for Multiplication									
<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">30</div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td></td><td>40</td><td>5</td></tr> <tr> <td></td><td>1,200</td><td>150</td></tr> <tr> <td>7</td><td>280</td><td>35</td></tr> </table> </div>		40	5		1,200	150	7	280	35	$\begin{array}{r} 45 \\ \times 37 \\ \hline (30 \times 40) = 1,200 \\ (30 \times 5) = 150 \\ (7 \times 40) = 280 \\ (7 \times 5) = 35 \\ \hline 1,665 \end{array}$	$\begin{array}{r} 1 \\ 45 \\ \times 37 \\ \hline 315 \\ + 1,350 \\ \hline 1,665 \end{array}$
	40	5									
	1,200	150									
7	280	35									



Akram says that  $34 \times 69$  will give you the same product as  $(34 \times 70) - 34$ . Do you agree or disagree? Why?



Fill in the area model starting at letter A.

a.  20 6

30	D.	C.
3	B.	A.

Final product : \_\_\_\_\_

b. 70 8


50	D.	C.
2	B.	A.

Final product : \_\_\_\_\_



## Lesson (6): Multiplying Multi-Digit Numbers:

Determine the values of the missing digits and then find the final product.

a. 

$$\begin{array}{r}
 \overset{4}{\cancel{4}} \\
 67 \\
 \times \quad 76 \\
 \hline
 402 \\
 + \boxed{\phantom{0}}69\boxed{\phantom{0}} \\
 \hline
 \boxed{\phantom{0000}}
 \end{array}$$

b.

$$\begin{array}{r}
 \overset{6}{\cancel{6}} \\
 49 \\
 \times \quad 78 \\
 \hline
 3\boxed{\phantom{0}}2 \\
 + 3\boxed{\phantom{0}}30 \\
 \hline
 \boxed{\phantom{0000}}
 \end{array}$$

c.

$$\begin{array}{r}
 \overset{1}{\cancel{2}} \quad 1 \\
 563 \\
 \times \quad 24 \\
 \hline
 225\boxed{\phantom{0}} \\
 + 1\boxed{\phantom{0}}2\boxed{\phantom{0}}0 \\
 \hline
 \boxed{\phantom{00000}}
 \end{array}$$



Solve the following. First by estimate by round to the greatest place value, second use standard algorithm to find the actual product.

a. Estimate

$$\begin{array}{r}
 888 \rightarrow \underline{\hspace{2cm}} \\
 \times \quad 29 \rightarrow \underline{\hspace{2cm}} \\
 \hline
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}}
 \end{array}$$

b. Estimate

$$\begin{array}{r}
 721 \rightarrow \underline{\hspace{2cm}} \\
 \times \quad 74 \rightarrow \underline{\hspace{2cm}} \\
 \hline
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}}
 \end{array}$$

c. Estimate

$$\begin{array}{r}
 4,625 \rightarrow \underline{\hspace{2cm}} \\
 \times \quad 18 \rightarrow \underline{\hspace{2cm}} \\
 \hline
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}}
 \end{array}$$



Choose the correct answer.

1.  $17 \times 18$  ☐  $20 \times 11$

A. >

B. <

C. =

2. What is the Ones digit in the product of  $37 \times 124$  ?

A. 2

B. 3

C. 6

D. 8

3. The product of  $372 \times 52$  is close to \_\_\_\_\_

A. 20,000

B. 15,000

C. 7,000

D. 10,000

4.  $831 \times 49$  is close to \_\_\_\_\_

A. 30,000

B. 32,000

C. 50,000

D. 40,000

5. The missing number in the product is \_\_\_\_\_

A. 2,882

B. 10,122

C. 2,892

D. 2,880

$$\begin{array}{r} 723 \\ \times 14 \\ \hline + 7,230 \\ \hline 10,122 \end{array}$$

6.  $327 \times 53$  ☐  $199 \times 43$

A. >

B. <

C. =



## Lesson (7): Multiplication Problems in the Real World:

Sandwiches at the diner are 24 pounds, a salad costs 3 pounds and a glass of juice is 8 pounds. A Family went to the diner and order 3 sandwiches, 2 salads and 3 glasses of juice.



a. How much will the family pay for the 3 sandwiches ? \_\_\_\_\_

b. How much will the family pay for the 2 salads ? \_\_\_\_\_

c. How much will the family pay for the 3 glasses of juice ? \_\_\_\_\_

d. How much is the total bill ? \_\_\_\_\_



Shirts in the seasons costs 185 pounds. Sweaters cost 270 pounds. Yara and her friends bought 12 shirts and 13 sweaters. \_\_\_\_\_

- How much will they pay for the shirts ? \_\_\_\_\_
- How much will they pay for the sweaters ? \_\_\_\_\_
- How much is their bill ? \_\_\_\_\_



For Wael's baklava syrup, he needs 250 milliliters of honey, 15 mL of orange extract, and 30 mL of lemon juice per recipe. How many total milliliters of liquid ingredients will he need for the sauce if he needs to make 18 batches?



Mona uses 1,133 grams of sugar daily. How many grams does she use in 30 weeks?



## Homework

1. Use standard algorithm strategy to find the result.

a.  $35 \times 862$

---

---

---

---

---

---

b.  $74 \times 5,641$

---

---

---

---

---

---

c.  $2,504 \times 16$

---

---

---

---

---

---



	300	60	7
	F.	E.	D.
20			
	C.	B.	A.
9			

Final product : \_\_\_\_\_

	500	40	6
	F.	E.	D.
10			
	C.	B.	A.
8			

Final product : \_\_\_\_\_



Find the result using standard algorithm.

$$\begin{array}{r} \text{a. } 26 \\ \times 33 \\ \hline \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} \text{b. } 78 \\ \times 52 \\ \hline \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} \text{c. } 367 \\ \times 29 \\ \hline \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} \text{d. } 546 \\ \times 18 \\ \hline \\ \hline \\ \hline \end{array}$$



Estimate the product.

a.  $416 \times 72$

b.  $871 \times 27$

c.  $586 \times 69$

d.  $490 \times 71$

e.  $817 \times 34$

f.  $999 \times 94$



Mona makes freshly squeezed lemonade each day for her customers. She uses 6 lemons for each liter of lemonade. She makes 8 liters of lemonade a day. After 365 days, how many lemons has she used?

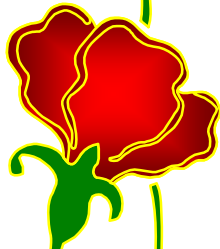
How many liters of lemonade does she make in 365 days?



For Wael's baklava syrup, he needs 250 milliliters of honey, 15 mL of orange extract, and 30 mL of lemon juice per recipe. How many total milliliters of liquid ingredients will he need for the sauce if he needs to make 18 batches?







# MATHEMATICS PRIMARY FIVE FIRST TERM

PART (2)





UNIT

4

Theme 2 | Mathematical Operations and  
Algebraic Thinking

# Unit 4 Division with Whole Numbers





## Concept (4-1)

### Models for Division

#### Lesson (1): Understanding Division:

$$\begin{array}{ccccccc} 28 & \div & 3 & = & 9 & R1 \\ \hline \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \text{Dividend} & & \text{Divisor} & & \text{Quotient} & & \text{Remainder} \end{array}$$



If 18 plums are divided equally into 3 bags, then how many plums will be in each bag?



If 18 plums are packed 3 to a bag, then how many bags will there be?



Salwa has 35 books. She puts 5 books on each shelf.

How many shelves does she use ?



Complete the following table.

	Division Equation	Dividend	Divisor	Quotient	Remainder
a.	$20 \div 5 = 4$	_____	_____	_____	_____
b.	$68 \div 7 = 9 R5$	_____	_____	_____	_____



## Lesson (2): Using the Area Model to Divide:

Divide :  $1,845 \div 15$  By using the area model

### Step 1

Draw a long rectangle and write 15 on the smaller left side of the rectangle.

15



### Step 2

Try to use basic facts and pattern to get close to 1,845

$$15 \times 1 = 15, \quad 15 \times 10 = 150$$

$$, \quad 15 \times 100 = 1,500 \text{ [close to 1,845]}$$

$$\bullet \text{ Subtract } 1,845 - 1,500 = 345$$

	100	
15	$\begin{array}{r} 1,845 \\ - 1,500 \\ \hline 345 \end{array}$	

### Step 3

There are 345 meters left to be divided by 15

$$15 \times 2 = 30$$

$$, \quad 15 \times 20 = 300 \text{ [close to 345]}$$

$$\bullet \text{ Subtract } 345 - 300 = 45$$

	100	20	
15	$\begin{array}{r} 1,845 \\ - 1,500 \\ \hline 345 \end{array}$	$\begin{array}{r} 345 \\ - 300 \\ \hline 45 \end{array}$	

### Step 4

Since, there are 45 meters left to be divided by 15

$$15 \times 1 = 15, \quad 15 \times 2 = 30, \quad 15 \times 3 = 45 \text{ [the same number]}$$

$$\bullet \text{ Subtract : } 45 - 45 = 0$$

	100	20	3
15	$\begin{array}{r} 1,845 \\ - 1,500 \\ \hline 345 \end{array}$	$\begin{array}{r} 345 \\ - 300 \\ \hline 45 \end{array}$	$\begin{array}{r} 45 \\ - 45 \\ \hline 00 \end{array}$

### Step 5

Add the 3 numbers  $100 + 20 + 3 = 123$

then :  $1,845 \div 15 = 123$



Complete each set of multiplication equations

1.  $3 \times 5 = \underline{\hspace{2cm}}$

2.  $40 \times 2 = \underline{\hspace{2cm}}$

$3 \times 50 = \underline{\hspace{2cm}}$

$40 \times 20 = \underline{\hspace{2cm}}$

$3 \times 500 = \underline{\hspace{2cm}}$

$400 \times 200 = \underline{\hspace{2cm}}$





**Model Match** Choose the correct area model that represents each problem and fill in any missing numbers. Then, use the area model to answer each problem.

1.  $9,234 \div 81 =$  \_\_\_\_\_

A.

	100	10	6
31	$\begin{array}{r} 3,622 \\ - 3,100 \\ \hline 522 \end{array}$	$\begin{array}{r} 522 \\ - 310 \\ \hline 212 \end{array}$	$\begin{array}{r} 212 \\ - 186 \\ \hline 26 \end{array}$
	$100 + 10 + 6 = 116 \text{ R}26$		

2.  $3,622 \div 31 =$  \_\_\_\_\_

B.

	100	50
_____	$\begin{array}{r} 1,050 \\ - 700 \\ \hline 350 \end{array}$	$\begin{array}{r} 350 \\ - 350 \\ \hline 0 \end{array}$
	$100 + 50 = 150$	

3.  $1,050 \div 7 =$  \_\_\_\_\_

C.

	_____	_____	_____	_____
81	$\begin{array}{r} 9,234 \\ - 8,100 \\ \hline 1,134 \end{array}$	$\begin{array}{r} 1,134 \\ - 810 \\ \hline 324 \end{array}$	$\begin{array}{r} 324 \\ - 162 \\ \hline 162 \end{array}$	$\begin{array}{r} 162 \\ - 162 \\ \hline 0 \end{array}$
	_____ + _____ + _____ + _____ = _____			



## Lesson (3): Using the Partial Quotients Model to Divide:

Divide :  $1,845 \div 15$

### Step 1

Draw a beginning model as shown.

$$15 \overline{) 1,845}$$

### Step 2

Think about the basic facts and patterns to get the closest number to 1,845

$$15 \times 1 = 15, \quad 15 \times 10 = 150$$

$$, \quad 15 \times 100 = 1,500 \text{ [close to 1,845]}$$

• Write 1,500 below the dividend and 100 to the right of the vertical line as shown.

• Subtract :  $1,845 - 1,500 = 345$

$$\begin{array}{r} 15 \overline{) 1,845} \\ - 1,500 \quad 100 \\ \hline 345 \end{array}$$

### Step 3

Look at what is remaining of the dividend [345] we need to divide it by 15

$$15 \times 1 = 15, \quad 15 \times 10 = 150$$

$$, \quad 15 \times 100 = 1,500 \text{ [larger than 345]}$$

then we can use  $15 \times 10 = 150$

• Write 150 below the remainder [345] and 10 to the right of the vertical line as shown.

• Subtract :  $345 - 150 = 195$

$$\begin{array}{r} 15 \overline{) 1,845} \\ - 1,500 \quad 100 \\ \hline 345 \\ - 150 \quad 10 \\ \hline 195 \end{array}$$

### Step 4

We still need to divide 195 by 15

$$\text{so, we can use } 15 \times 10 = 150$$

and follow the last step as shown.

• Subtract :  $195 - 150 = 45$

$$\begin{array}{r} 15 \overline{) 1,845} \\ - 1,500 \quad 100 \\ \hline 345 \\ - 150 \quad 10 \\ \hline 195 \\ - 150 \quad 10 \\ \hline 45 \end{array}$$

### Step 5

At last we need to divide 45 by 15

$$1 \times 15 = 15, \quad 2 \times 15 = 30$$

$$, \quad 3 \times 15 = 45 \text{ [the same number]}$$

• Write 45 below 45 [the last remainder] and 3 to the right of the vertical line as shown.

$$\begin{array}{r} 15 \overline{) 1,845} \\ - 1,500 \quad 100 \\ \hline 345 \\ - 150 \quad 10 \\ \hline 195 \\ - 150 \quad 10 \\ \hline 45 \\ - 45 \quad 3 \\ \hline 0 \end{array}$$



Look at the partial quotients solution for each problem. Fill in the blanks and empty boxes to complete the solution.

a.

$$\begin{array}{r}
 118 \text{ R } 13 \\
 23 \overline{) 2,727} \\
 - 2,300 \\
 \hline
 427 \\
 - 230 \\
 \hline
 197 \\
 - 69 \\
 \hline
 128 \\
 - 69 \\
 \hline
 59 \\
 - 46 \\
 \hline
 13
 \end{array}$$

b.

$$\begin{array}{r}
 \boxed{\phantom{000}} \\
 3 \overline{) 2,451} \\
 - \boxed{\phantom{000}} \quad 800 \\
 \hline
 51 \\
 - 30 \\
 \hline
 21 \\
 - \boxed{\phantom{00}} \\
 \hline
 0
 \end{array}$$

c.

$$\begin{array}{r}
 134 \text{ R } 23 \\
 60 \overline{) 8,063} \\
 - \boxed{\phantom{000}} \quad 100 \\
 \hline
 2,063 \\
 - \boxed{\phantom{000}} \quad 30 \\
 \hline
 263 \\
 - \boxed{\phantom{000}} \quad 4 \\
 \hline
 23
 \end{array}$$



## Lesson (4): Estimating Quotients:

Estimate using compatible numbers.

a.  $5,814 \div 47 =$  \_\_\_\_\_

Estimation: \_\_\_\_\_

c.  $1,448 \div 48 =$  \_\_\_\_\_

Estimation: \_\_\_\_\_

b.  $6,397 \div 28 =$  \_\_\_\_\_

Estimation: \_\_\_\_\_

d.  $7,061 \div 23 =$  \_\_\_\_\_

Estimation: \_\_\_\_\_



## Homework

Estimate using compatible numbers.

a.  $6,658 \div 69 =$  \_\_\_\_\_

Estimation: \_\_\_\_\_

b.  $1,064 \div 19 =$  \_\_\_\_\_

Estimation: \_\_\_\_\_



Choose the correct answer.

1. In the equation  $27 \div 3 = 9$ , the quotient is \_\_\_\_\_

- A. 27                      B. 3  
C. 9                        D. zero

2. The divisor in the equation  $48 \div 6 = 8$  is \_\_\_\_\_

- A. 48                      B. 6  
C. 8                        D. zero

3. Dividend = Quotient  $\times$  divisor + \_\_\_\_\_

- A. Dividend              B. Quotient  
C. Divisor                D. Remainder

4.  $36 \div \text{_____} = 9$

- A. 3                        B. 4  
C. 5                        D. 6

5. \_\_\_\_\_  $\div 5 = 9$

- A. 59                      B. 54  
C. 45                      D. 95

6.  $29 \div 4 = 7 \text{ R } \text{_____}$

- A. zero                    B. 1  
C. 2                        D. 3

7. Zero divided by any non-zero number gives \_\_\_\_\_ as a quotient.

- A. zero                    B. same number  
C. 1                        D. 2

8. Giovanni needs 36 balloons for the party but balloons come in a pack of 9. How many packs should he buy?

- A. 2                        B. 3  
C. 4                        D. 5



Look at the partial quotients solution for each problem. Fill in the blanks and empty boxes to complete the solution.

a.

$$\begin{array}{r} \boxed{\phantom{00}} \\ 9 \overline{) 4,608} \\ - 4,500 \phantom{00} \text{ L} \\ \hline \boxed{\phantom{00}} \\ - \phantom{00} 90 \phantom{00} \text{ L} \\ \hline \phantom{00} 18 \\ - \phantom{00} 18 \phantom{00} \text{ L} \\ \hline \phantom{00} 0 \end{array}$$

b.

$$\begin{array}{r} \boxed{\phantom{00}} \\ 15 \overline{) 6,180} \\ - \boxed{\phantom{000}} \text{ 300} \\ \hline \phantom{00} 1,680 \\ - \phantom{00} 1,500 \text{ L} \\ \hline \phantom{000} \boxed{\phantom{00}} \\ - \phantom{000} 150 \text{ 10} \\ \hline \phantom{0000} 30 \\ - \phantom{0000} 30 \text{ L} \\ \hline \phantom{00000} \boxed{\phantom{00}} \end{array}$$

c.

$$\begin{array}{r} 232 \text{ R } \boxed{\phantom{00}} \\ 30 \overline{) 6,975} \\ - \boxed{\phantom{000}} \text{ 200} \\ \hline \phantom{000} \boxed{\phantom{00}} \\ - \phantom{000} \boxed{\phantom{00}} \text{ 30} \\ \hline \phantom{0000} \boxed{\phantom{00}} \\ - \phantom{0000} \boxed{\phantom{00}} \text{ 2} \\ \hline \phantom{00000} \boxed{\phantom{00}} \end{array}$$



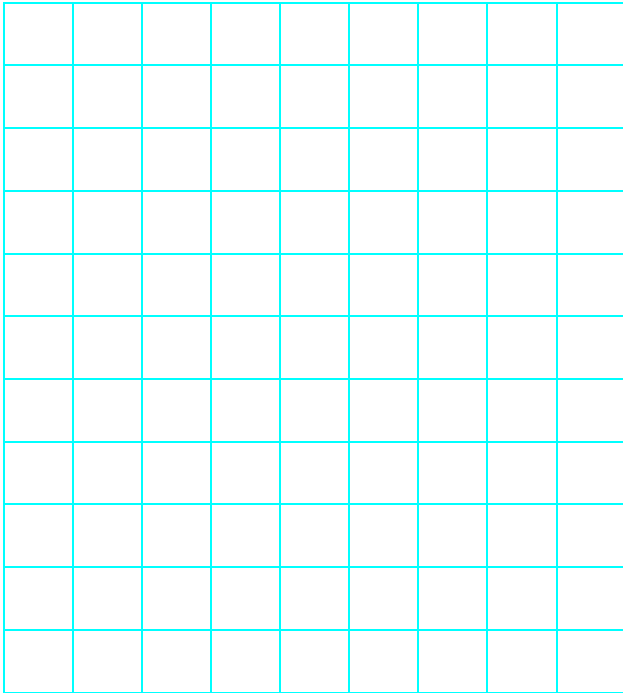


## Concept (4-2)

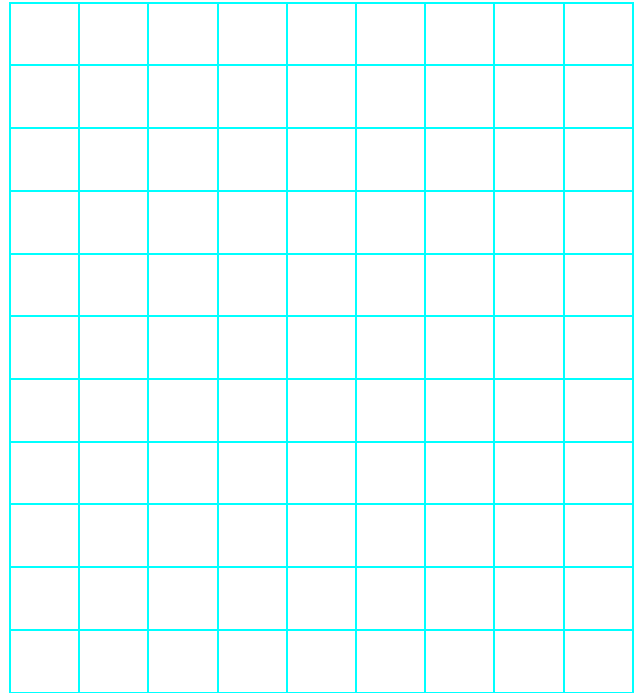
### Dividing by 2-Digit Divisors

Lesson (5): Using the Standard Algorithm to Divide:

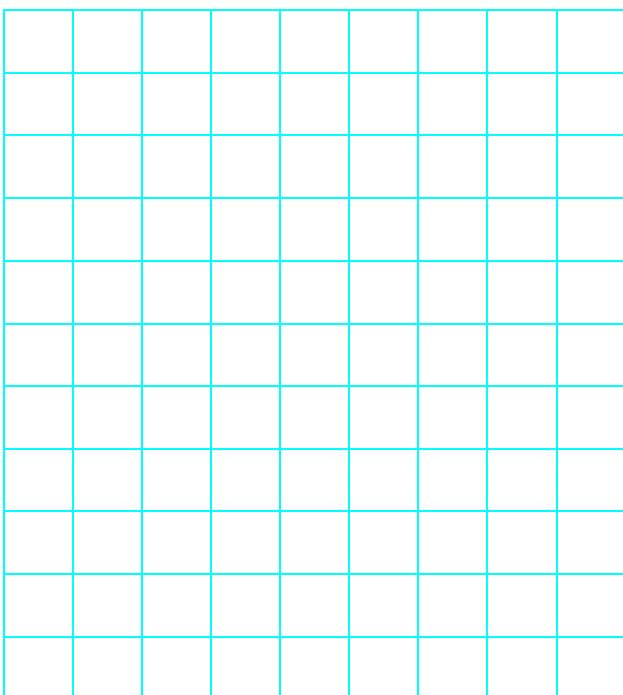
$$1596 \div 3 =$$



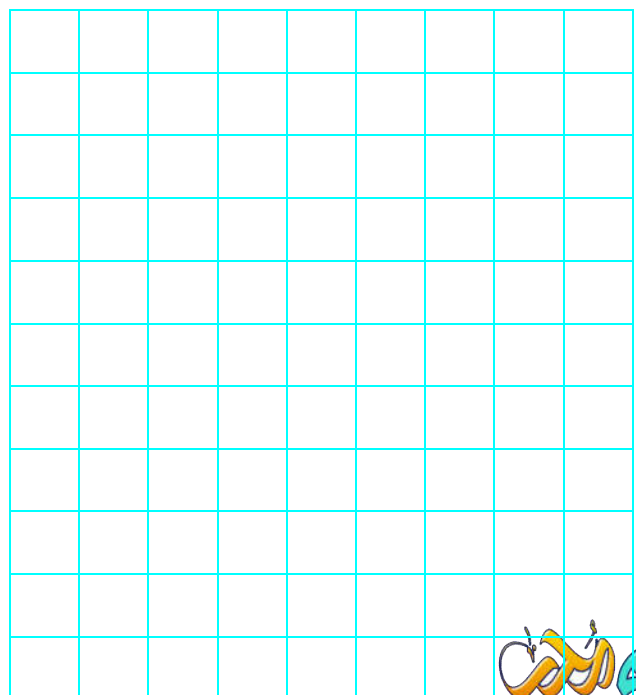
$$2524 \div 4 =$$



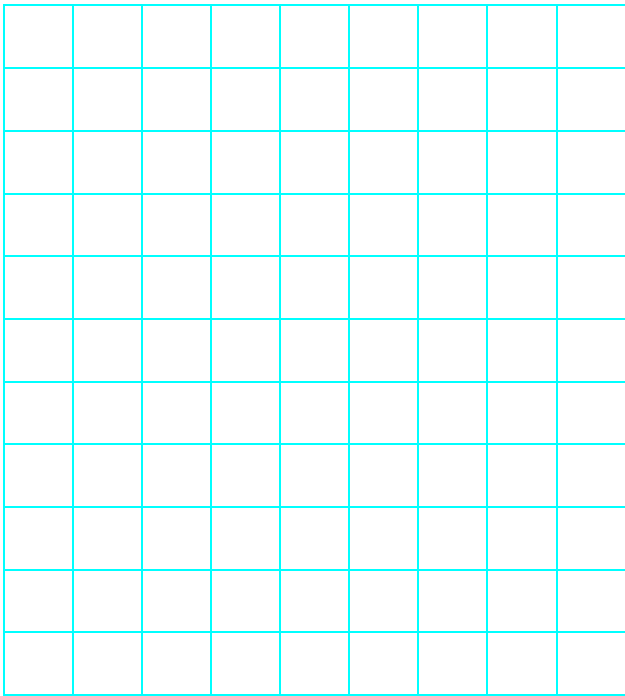
$$744 \div 24 =$$



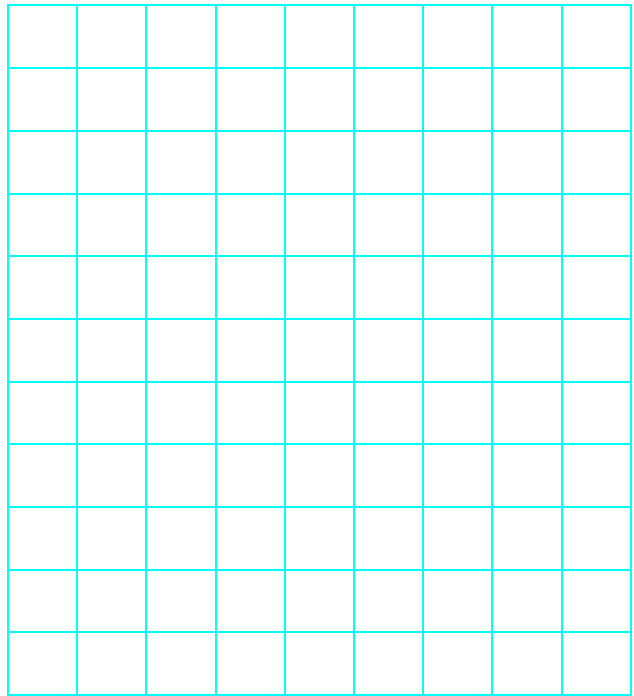
$$1,910 \div 83 =$$



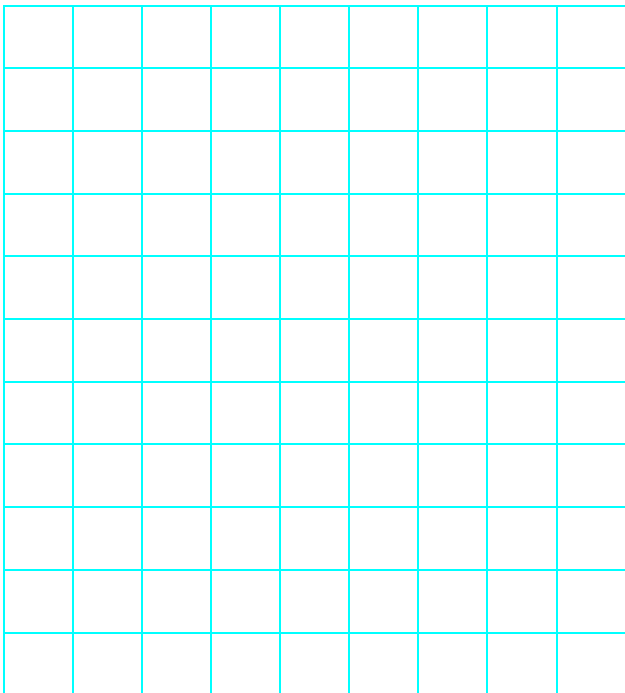
$1,113 \div 53 =$



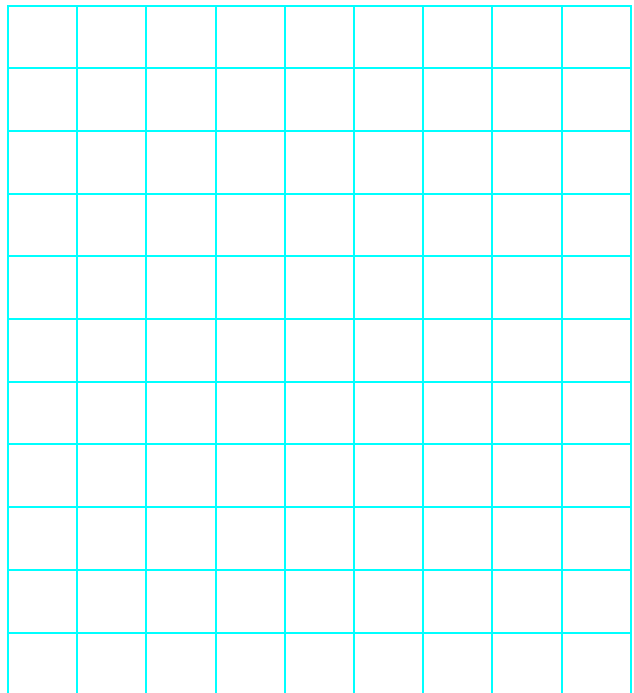
$1,077 \div 43 =$



$1,475 \div 35 =$



$1,716 \div 52 =$



## Lesson (6): Checking Division with Multiplication:

Choose the correct answer.

1. The division equation that matches

$125 \times 36 = 4,500$  is \_\_\_\_\_

- A.  $4,500 - 125 = 36$
- B.  $125 \div 36 = 4,500$
- C.  $4,500 \div 36 = 125$
- D.  $125 + 36 = 4,500$

2. Which expression can be used to check the solution of the following division problem ?

$8,668 \div 24 = 361 \text{ R } 4$

- A.  $24 \times 361$
- B.  $28 \times 8,668$
- C.  $361 \times 4 + 24$
- D.  $24 \times 361 + 4$



## Lesson (7): Multistep Story Problems:

Amgd saved 550 pounds, Bassem saved 3 times as much as Amgd and Sameh saved 900 pounds more than Agmd. How many pounds were saved by all of them ?

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Mom baked a batch of 12 balah el sham. Two balah el sham fell on the floor. If 4 children split the remaining balah el sham equally, how many balah el sham will each child get ?

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# Homework

$$1,752 \div 73 =$$

[illegible]

$$1,676 \div 54 =$$

[illegible]

$$1,403 \div 61 =$$

[illegible]

$$1,935 \div 92 =$$

[illegible]



In one year, a textile factory used 11,650 meters of cotton, 4,950 fewer meters of silk than cotton, and 3,500 fewer meters of wool than silk. How many meters of fabric were used in all ?

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Malek and his family are going on a road trip to his grandmother's house, which is 465 kilometers away. On Friday, they travel 124 km. On Saturday, they traveled 210 km. How many kilometers will they need to travel on Sunday to reach his grandmother's house?

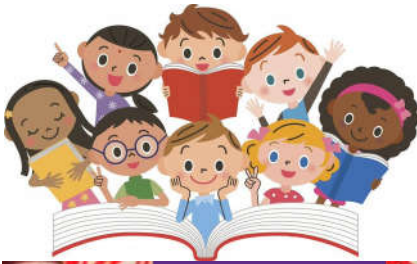
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UNIT

5

Theme 2 | Mathematical Operations and  
Algebraic Thinking

# Unit 5 Multiplication and Division with Decimals

Photo Credit: Marjol Kestelie / Shutterstock.com





## Concept (5-1)

### Multiplying Decimals

#### Lesson (1): Multiplying by Powers of Ten:

**Missing Numbers** Fill in the missing numbers in each equation.

1      10      100      1,000      10,000      100,000

1.  $496 = 4 \times \underline{(A)} + 9 \times \underline{(B)} + 6$
2.  $6,140 = 6 \times \underline{(C)} + 1 \times \underline{(D)} + 4 \times \underline{(E)}$
3.  $20,403 = 2 \times \underline{(F)} + 4 \times \underline{(G)} + 3$
4.  $78,594 = 7 \times \underline{(H)} + 8 \times \underline{(I)} + 5 \times \underline{(J)} + 9 \times \underline{(K)} + 4$
5.  $8,032 \times 1,000 = \underline{(L)}$



Now fill in the blanks.

1.  $25 \times 1,000 = \underline{\hspace{2cm}}$
2.  $25 \times 100 = \underline{\hspace{2cm}}$
3.  $25 \times 10 = \underline{\hspace{2cm}}$
4.  $25 \times 1 = \underline{\hspace{2cm}}$
5.  $25 \times 0.1 = \underline{\hspace{2cm}}$
6.  $25 \times 0.01 = \underline{\hspace{2cm}}$
7.  $25 \times 0.001 = \underline{\hspace{2cm}}$



**Hoda's Stride** Hoda's stride is 0.72 meters. How far, in meters, will Hoda walk after taking 1,000 paces? Use words and numbers to explain how you found your answer.



**Lesson (2): Multiplying Decimals by Whole Numbers:****Evaluate:**

1.  $0.3 \times 3$

2.  $0.3 \times 4$

3.  $0.3 \times 5$

4.  $2.5 \times 3$

5.  $0.35 \times 5$

**Complete.**

a.  $7.5 \times 3 =$  \_\_\_\_\_

b.  $7.5 \times 6 =$  \_\_\_\_\_

c.  $6.05 \times 5 =$  \_\_\_\_\_

d.  $0.74 \times 9 =$  \_\_\_\_\_

e.  $5.68 \times 7 =$  \_\_\_\_\_

f.  $7.2 \times 12 =$  \_\_\_\_\_

**Lesson (3): Multiplying Tenths by Tenths:****Evaluate:**

1.  $0.1 \times 0.1 =$  \_\_\_\_\_

2.  $0.3 \times 0.4 =$  \_\_\_\_\_

3.  $0.5 \times 0.2 =$  \_\_\_\_\_

5.  $0.9 \times 0.5 =$  \_\_\_\_\_

4.  $0.7 \times 0.8 =$  \_\_\_\_\_

6.  $0.5 \times 0.6 =$  \_\_\_\_\_

7.  $1.6 \times 0.4 =$  \_\_\_\_\_



**Lesson (4): Estimating Decimal Products:**

1.  $24.3 \times 1.8$  Estimate: \_\_\_\_\_
2.  $8.2 \times 11.5$  Estimate: \_\_\_\_\_
3.  $6.7 \times 11.5$  Estimate: \_\_\_\_\_
4.  $99.6 \times 12.7$  Estimate: \_\_\_\_\_
5.  $58.25 \times 99.3$  Estimate: \_\_\_\_\_
6.  $649.9 \times 0.8$  Estimate: \_\_\_\_\_
7.  $47.1 \times 33.6$  Estimate: \_\_\_\_\_
8.  $450.321 \times 2.2$  Estimate: \_\_\_\_\_
9.  $121.352 \times 3.8$  Estimate: \_\_\_\_\_

**Lesson (5): Using the Area Model to Multiply Decimals:**

- |  |   |
|--|---|
| 1. $80 \times 3 = 240$                       | 2. $7 \times 600 = 4,200$                     |
| $8 \times 30 = 240$                          | $7 \times 60 = \underline{\hspace{2cm}}$      |
| $8 \times 3 = \underline{\hspace{2cm}}$      | $7 \times 6 = 42$                             |
| $0.8 \times 3 = \underline{\hspace{2cm}}$    | $7 \times 0.6 = \underline{\hspace{2cm}}$     |
| $8 \times 0.3 = 2.4$                         | $7 \times 0.06 = 0.42$                        |
| $0.8 \times 0.3 = \underline{\hspace{2cm}}$  | $0.7 \times 0.6 = \underline{\hspace{2cm}}$   |
| $0.08 \times 0.3 = \underline{\hspace{2cm}}$ | $0.7 \times 0.06 = \underline{\hspace{2cm}}$  |
| $0.8 \times 0.03 = \underline{\hspace{2cm}}$ | $0.07 \times 0.06 = \underline{\hspace{2cm}}$ |





# Homework

Multiply to complete the table.

	1.	2.	3.
×	3	30	300
0.001	A. _____	G. _____	M. _____
0.01	B. _____	H. _____	N. _____
0.1	C. _____	I. _____	O. _____
1	D. _____	J. _____	P. _____
10	E. _____	K. _____	Q. _____
100	F. _____	L. _____	R. _____



**Let's Try It** Evaluate.

1.  $4.2 \times 10 =$  \_\_\_\_\_

4.  $1.245 \times 100 =$  \_\_\_\_\_

2.  $360 \times 0.1 =$  \_\_\_\_\_

5.  $602.1 \times 0.01 =$  \_\_\_\_\_

3.  $7.4 \times 0.01 =$  \_\_\_\_\_

6.  $14.14 \times 0.1 =$  \_\_\_\_\_



Find the result of each of the following.

a.  $57.32 \times 0.1 =$  \_\_\_\_\_

b.  $0.0823 \times 1,000 =$  \_\_\_\_\_

c.  $18 \times 0.001 =$  \_\_\_\_\_

d.  $0.524 \times 10 =$  \_\_\_\_\_

e.  $5.3 \times 0.01 =$  \_\_\_\_\_

f.  $62 \times 100 =$  \_\_\_\_\_



Complete.

a.  $0.5 \times 5 =$  \_\_\_\_\_

b.  $0.5 \times 6 =$  \_\_\_\_\_

c.  $3.5 \times 3 =$  \_\_\_\_\_

d.  $0.45 \times 5 =$  \_\_\_\_\_

e.  $0.015 \times 9 =$  \_\_\_\_\_

f.  $4.15 \times 12 =$  \_\_\_\_\_



Find each of the following.

a.

$$\begin{array}{r} 2.5 \\ \times 3 \\ \hline \end{array}$$

b.

$$\begin{array}{r} 0.35 \\ \times 5 \\ \hline \end{array}$$

c.

$$\begin{array}{r} 4.4 \\ \times 6 \\ \hline \end{array}$$

d.

$$\begin{array}{r} 0.65 \\ \times 7 \\ \hline \end{array}$$



**Lesson (6): Multiplying Decimals through the Hundredths Place:**

**Lesson (7): Multiplying Decimals through the Thousandths Place:**

The digits of the product for each problem have been provided, but the decimal point is missing. Without multiplying, use your reasoning to place the decimal point correctly in the product.

1.  $5.8 \times 7.4 =$  \_\_\_\_\_

**4,292**

3.  $11.68 \times 2.4 =$  \_\_\_\_\_

**28,032**

2.  $32.4 \times 5.3 =$  \_\_\_\_\_

**17,172**

4.  $15.4 \times 0.49 =$  \_\_\_\_\_

**7,546**



**Using the Standard Algorithm for Decimal Numbers** Find the product for each multiplication problem using the standard algorithm.

1.  $29.35$   
 $\times 3.4$

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3.  $8.92$   
 $\times 0.17$

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2.  $43.2$   
 $\times 0.24$

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4.  $1.74$   
 $\times 35$

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Find the product for each multiplication problem using the standard algorithm :

a.  $2.43$   
 $\times 6.9$

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b.  $29.35$   
 $\times 3.4$

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c.  $47.8$   
 $\times 5.2$

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Compare the products of the following by putting ( $<$ ,  $>$  or  $=$  ).

a.  $0.318 \times 1.5$

$3.18 \times 0.15$

b.  $0.75 \times 0.02$

$7.5 \times 0.2$

c.  $13.6 \times 0.4$

$0.136 \times 0.4$

d.  $7.3 \times 0.28$

$0.73 \times 2.8$

e.  $0.342 \times 1.2$

$3.42 \times 0.12$

f.  $172 \times 0.003$

$0.172 \times 0.3$

g.  $48.2 \times 3.7$

$4.82 \times 37$

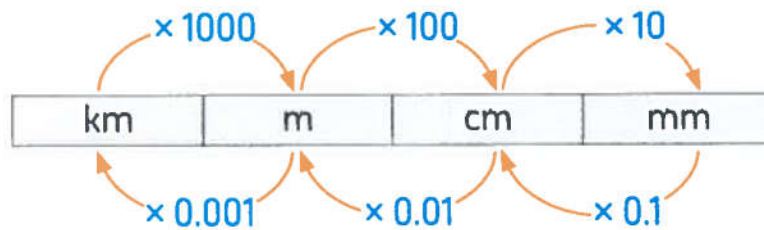
h.  $42 \times 1.532$

$4.2 \times 15.32$

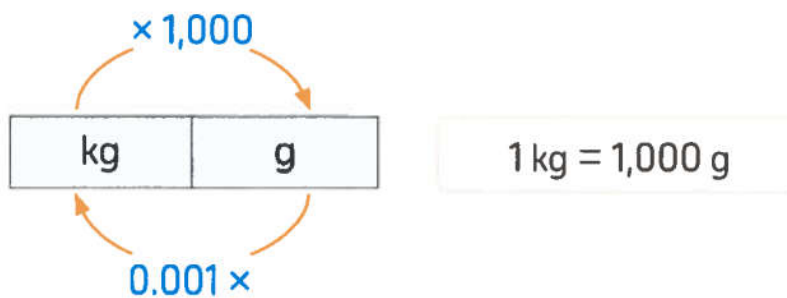


## Lesson (8): Decimals and the Metric System:

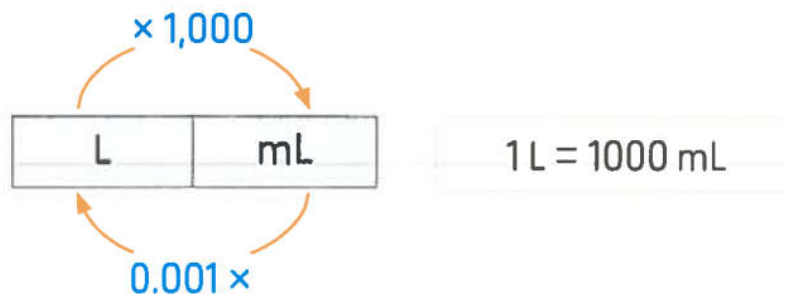
### • Converting metric units of length :



### • Converting metric units of mass :



### • Converting metric units of capacity :





**Metric Match** Select the equivalent measurement.

- |                        |        |       |       |        |
|------------------------|--------|-------|-------|--------|
| 1. 10,870 g = _____ kg | 1,087  | 108.7 | 10.87 | 1.087  |
| 2. 3,465 mL = _____ L  | 0.3465 | 3.465 | 34.65 | 346.5  |
| 3. 22 cm = _____ m     | 2,200  | 220   | 2.2   | 0.22   |
| 4. 0.7 m = _____ cm    | 7      | 70    | 700   | 7,000  |
| 5. 17.6 kg = _____ g   | 0.176  | 1.76  | 1,760 | 17,600 |
| 6. 95 mm = _____ cm    | 9.5    | 950   | 9,500 | 95,000 |



## Lesson (9): Measurements, Decimals, and Power of Ten:

**Powers of Ten** Complete each equation. Discuss the difference between powers of 10 and multiples of 10.

- |                              |                                 |                                 |
|------------------------------|---------------------------------|---------------------------------|
| 1. $425 \times 10 =$ _____   | 4. $425 \times$ _____ $= 0.425$ | 7. _____ $\times 1,000 = 1,800$ |
| 2. $3.7 \times 100 =$ _____  | 5. $3.7 \times$ _____ $= 0.37$  | 8. _____ $\times 0.1 = 0.6512$  |
| 3. $0.94 \times 0.1 =$ _____ | 6. $0.94 \times$ _____ $= 940$  | 9. _____ $\times 100 = 89.3$    |



**Converting Measurements** Use multiplication and powers of 10 to convert the measurements.

1. Amgad is a weightlifter. He needs to drink about 4,230 milliliters of water every day. How many liters of water does he need? Select the multiplication problem that could be used to answer the question.
- |                         |                         |
|-------------------------|-------------------------|
| A. $4,230 \times 1,000$ | C. $4,230 \times 0.01$  |
| B. $4,230 \times 100$   | D. $4,230 \times 0.001$ |



**Identify the Correct Conversion** Study each problem. In each problem, mark whether the multiplication given to complete the conversion is correct. Select Y for yes and N for no. Then, complete all conversions by filling in each blank with the equivalent measurement (even if the conversion is incorrect).

<p>A. 0.007 kg = _____ g</p> <p><math>0.007 \times 1,000</math> Y / N</p>	<p>G. 4 cm = _____ m</p> <p><math>4 \times 0.01</math> Y / N</p>	<p>M. 1.5 m = _____ cm</p> <p><math>1.5 \times 0.01</math> Y / N</p>	<p>T. 0.8 cm = _____ mm</p> <p><math>0.8 \times 0.1</math> Y / N</p>
<p>B. 51 mm = _____ cm</p> <p><math>51 \times 10</math> Y / N</p>	<p>H. 500 mL = _____ L</p> <p><math>500 \times 1,000</math> Y / N</p>	<p>N. 6,410 cm = _____ m</p> <p><math>6,410 \times 0.01</math> Y / N</p>	<p>U. 10.3 m = _____ cm</p> <p><math>10.3 \times 0.01</math> Y / N</p>
<p>C. 230 cm = _____ m</p> <p><math>230 \times 0.01</math> Y / N</p>	<p>I. 5.67 m = _____ cm</p> <p><math>5.67 \times 10</math> Y / N</p>	<p>P. 6,410 m = _____ km</p> <p><math>6,410 \times 0.001</math> Y / N</p>	<p>V. 9,320 mm _____ cm</p> <p><math>9,320 \times 10</math> Y / N</p>
<p>D. 4,800 mL = _____ L</p> <p><math>4,800 \times 0.1</math> Y / N</p>	<p>J. 782 mm = _____ cm</p> <p><math>782 \times 10</math> Y / N</p>	<p>Q. 350 cm = _____ m</p> <p><math>350 \times 0.01</math> Y / N</p>	<p>W. 9,320 cm = _____ m</p> <p><math>9,320 \times 0.01</math> Y / N</p>
<p>E. 10 mm = _____ cm</p> <p><math>10 \times 0.1</math> Y / N</p>	<p>K. 782 m = _____ km</p> <p><math>782 \times 0.001</math> Y / N</p>	<p>R. 5.5 kg = _____ g</p> <p><math>5.5 \times 1,000</math> Y / N</p>	<p>X. 0.97 kg = _____ g</p> <p><math>0.97 \times 1,000</math> Y / N</p>
<p>F. 500 m = _____ km</p> <p><math>500 \times 0.001</math> Y / N</p>	<p>L. 315 cm = _____ m</p> <p><math>315 \times 0.01</math> Y / N</p>	<p>S. 3,250 cm = _____ mm</p> <p><math>3,250 \times 0.1</math> Y / N</p>	<p>Y. 970 cm = _____ m</p> <p><math>970 \times 100</math> Y / N</p>



**Lesson (10): Solving Multistep Story Problems:**

1. Marwan is a computer engineer. The computer he is repairing is currently in three pieces that have a mass of 2 kilograms, 600 grams, and 0.03 kg. His manager is waiting for the last piece, which has a mass of 1,750 g, to arrive. What will the mass of the computer be when it is completely assembled?
- \_\_\_\_\_



2. Rania is a nurse in a hospital. She is getting wrap bandages from the storage closet for her patients. She needs 1.35 meters of bandages for each of her 4 patients. There are 250 centimeters in each package. How many packages does she need? \_\_\_\_\_

How many, if any, will be left over? \_\_\_\_\_



3. Dalia made a liter of sugar cane juice. She drank 320 milliliters. Her father drank 0.25 liters. How much sugar cane juice is remaining? \_\_\_\_\_



4. Ehab wants to know how much he has grown this year. In January, he was 138.2 centimeters. By the end of the year, he was 1.5 meters tall. How much did Ehab grow this year? \_\_\_\_\_



5. Ehab's twin sister Eman also wants to know how much she grew. In January, she was 1.34 meters. At the end of the year, she was 145 centimeters. Who grew more—Ehab or Eman? \_\_\_\_\_ How much more? \_\_\_\_\_



# Homework

**Using the Standard Algorithm for Decimal Numbers** Find the product for each multiplication problem using the standard algorithm.

5.  $2.43$

$\times 6.9$

---



---



---



---

6.  $10.21$

$\times 0.64$

---



---



---



---

7.  $12.87$

$\times 7.3$

---



---



---



---

8.  $47.8$

$\times 5.2$

---



---



---



---



Find the product for each multiplication problem using the standard algorithm :

e.

$9.72$

$\times 0.46$

---



---



---



---

f.

$1.74$

$\times 35$

---



---



---



---

g.

$10.21$

$\times 0.64$

---



---



---



---





**Metric Match** Select the equivalent measurement.

- |                        |         |        |        |        |
|------------------------|---------|--------|--------|--------|
| 7. 19,629 mL = _____ L | 1,962.9 | 196.29 | 19.629 | 1.9629 |
| 8. 3.3 m = _____ cm    | 33      | 330    | 3,300  | 33,000 |
| 9. 700 g = _____ kg    | 7,000   | 70     | 7      | 0.7    |
| 10. 694 mm = _____ cm  | 6,940   | 69.4   | 6.94   | 0.694  |
| 11. 2.5 L = _____ mL   | 2,500   | 250    | 25     | 0.25   |
| 12. 7.8 cm = _____ mm  | 0.078   | 0.78   | 78     | 780    |



If the heights of Nada, Habiba and Sara are 1.22 m., 124 cm and 1,230 mm., what is the total of their heights ?



If Nader's weight at the beginning of a year is 34.1 kg and his weight at the end of the same year is 32,460 g, how much weight did Nader lose ?



The length of a fabric roll is 4.56 m. A piece of length 114 cm is taken to make a blouse and another piece of length 980 mm to make a skirt. How long is the remaining part ?



## Concept (5-2)

### Dividing Decimals

#### Lesson (11): Dividing by Powers of Ten:

**Fill It In** Use the patterns you have just discovered to complete the division.

1.  $800 \div 100 =$  \_\_\_\_\_

$800 \div 10 =$  \_\_\_\_\_

$800 \div 1 =$  \_\_\_\_\_

$800 \div 0.1 =$  \_\_\_\_\_

$800 \div 0.01 =$  \_\_\_\_\_

2.  $6,700 \div 1,000 =$  \_\_\_\_\_

$6,700 \div 100 =$  \_\_\_\_\_

$6,700 \div 10 =$  \_\_\_\_\_

$6,700 \div 1 =$  \_\_\_\_\_

$6,700 \div 0.1 =$  \_\_\_\_\_

$6,700 \div 0.01 =$  \_\_\_\_\_

3.  $32 \div 10 =$  \_\_\_\_\_

4.  $5.7 \div 0.1 =$  \_\_\_\_\_

5.  $5.7 \div 100 =$  \_\_\_\_\_

6.  $2.16 \div 0.01 =$  \_\_\_\_\_

7.  $71 \div 1,000 =$  \_\_\_\_\_

8.  $12.8 \div 0.01 =$  \_\_\_\_\_

9.  $0.4 \div 10 =$  \_\_\_\_\_

10.  $0.4 \div 0.001 =$  \_\_\_\_\_

11.  $29.08 \div 0.1 =$  \_\_\_\_\_

12.  $102.3 \div 0.01 =$  \_\_\_\_\_



**How Hot?** Temperatures must reach at least  $1,100^{\circ}\text{C}$  for glass to be blown or for earthenware clay to harden. Water boils at about one-tenth of that temperature. Select the choice that is closest to the temperature at which water boils.

A.  $1,100 \times 10$

B.  $1,100 \div 10$

C.  $1,100 \times 0.1$

D.  $1,100 \div 0.1$



## Lesson (12): Patterns and Relationships in Powers of Ten:

**Same Answer, Inverse Operation** Complete each equation with the correct power of 10. Be sure to look carefully at the given operation.

1.  $14.6 \times \underline{\hspace{2cm}} = 146$

$14.6 \div \underline{\hspace{2cm}} = 146$

2.  $387.23 \times \underline{\hspace{2cm}} = 3.8723$

$387.23 \div \underline{\hspace{2cm}} = 3.8723$

3.  $9.102 \times \underline{\hspace{2cm}} = 910.2$

$9.102 \div \underline{\hspace{2cm}} = 910.2$

4.  $65 \times \underline{\hspace{2cm}} = 6,500$

$65 \div \underline{\hspace{2cm}} = 6,500$

5.  $0.39 \times \underline{\hspace{2cm}} = 0.039$

$0.39 \div \underline{\hspace{2cm}} = 0.039$

6.  $0.75 \times \underline{\hspace{2cm}} = 750$

$0.75 \div \underline{\hspace{2cm}} = 750$

7.  $28.4 \times \underline{\hspace{2cm}} = 0.284$

$28.4 \div \underline{\hspace{2cm}} = 0.284$

8.  $150.8 \times \underline{\hspace{2cm}} = 150,800$

$150.8 \div \underline{\hspace{2cm}} = 150,800$



**Metric Conversions with Multiplication and Division** Complete each conversion. Then, write a multiplication equation and a division equation with the same answer.

Example:  $357 \text{ cm} = 3.57 \text{ m}$

$357 \times 0.01 = 3.57$

$357 \div 100 = 3.57$

1.  $712 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

$712 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

$712 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2.  $23 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

$23 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

$23 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3.  $300 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

$300 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

$300 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$



**Lesson (13): Modeling Decimal Division:**

**Modeling Decimal Division** Use your Base 10 blocks to model the problem. Write the quotient for each division.

1.  $2.4 \div 0.4 =$  \_\_\_\_\_

4.  $8.4 \div 1.2 =$  \_\_\_\_\_

2.  $3.6 \div 8 =$  \_\_\_\_\_

5.  $9.8 \div 5 =$  \_\_\_\_\_

3.  $2 \div 0.4 =$  \_\_\_\_\_

6.  $7 \div 4 =$  \_\_\_\_\_

**Lesson (14): Estimating Decimal Quotients:**

**Estimating Decimal Quotients** Estimate the quotient for each expression by rounding the divisor and dividend to the nearest compatible whole numbers.

1.  $45.64 \div 6.87$

My Estimate: \_\_\_\_\_

2.  $4.98 \overline{)22.12}$

My Estimate: \_\_\_\_\_

3.  $3.25 \overline{)10.17}$

My Estimate: \_\_\_\_\_

**Lesson (15): Dividing Decimals by Whole Numbers:**

1.  $9 \overline{)121.1}$

2.  $16 \overline{)62.24}$

3.  $30 \overline{)589.5}$





**Lesson (16): Dividing Decimals by Decimals:**

Estimate the quotients. Then, use the standard algorithm for division to find the quotient. Use your estimates to check the reasonableness of your answers.

1.  $2.2 \overline{)26.4}$  Estimate: \_\_\_\_\_  
Quotient: \_\_\_\_\_

2.  $0.4 \overline{)99}$  Estimate: \_\_\_\_\_  
Quotient: \_\_\_\_\_

3.  $0.04 \overline{)1.5}$  Estimate: \_\_\_\_\_  
Quotient: \_\_\_\_\_

**Lesson (17): Solving Challenging Multistep Story Problems:**

1. As part of her fitness training, Samira cycles 42.12 kilometers in 2 hours.

If she cycles at the same rate the entire time, how far will she travel in 1 hour?  
Give your answer in km and meters using whole numbers.

\_\_\_\_\_ km and \_\_\_\_\_ m



2. Magdy is filling identical vases with water for flower arrangements at the florist. He pours 18 liters and 250 milliliters equally into 24 vases. When he is finished, Magdy still has 0.85 L of water left.

How much water is in each vase? Give your answer in liters. \_\_\_\_\_



# Homework

**Dividing by Powers of Ten** Complete each division problem mentally. Look for patterns to predict the placement of the decimal point.

1.  $2,500 \div 100 =$  \_\_\_\_\_

4.  $2,500 \div 0.1 =$  \_\_\_\_\_

2.  $2,500 \div 10 =$  \_\_\_\_\_

5.  $2,500 \div 0.01 =$  \_\_\_\_\_

3.  $2,500 \div 1 =$  \_\_\_\_\_

6.  $2,500 \div 0.001 =$  \_\_\_\_\_



**Metric Conversions with Multiplication and Division** Complete each conversion. Then, write a multiplication equation and a division equation with the same answer.

4.  $5,200 \text{ mm} =$  \_\_\_\_\_ m

5.  $5,200 \text{ mm} =$  \_\_\_\_\_ cm

$5,200 \times$  \_\_\_\_\_  $=$  \_\_\_\_\_

$5,200 \times$  \_\_\_\_\_  $=$  \_\_\_\_\_

$5,200 \div$  \_\_\_\_\_  $=$  \_\_\_\_\_

$5,200 \div$  \_\_\_\_\_  $=$  \_\_\_\_\_



**Estimating Decimal Quotients** Estimate the quotient for each expression by rounding the divisor and dividend to the nearest compatible whole numbers.

4.  $45.35 \div 5.3$

My Estimate: \_\_\_\_\_

5.  $18.52 \overline{)62.31}$

My Estimate: \_\_\_\_\_

6.  $21 \overline{)492.7}$

My Estimate: \_\_\_\_\_



4.  $5 \overline{)51.65}$

5.  $6 \overline{)73.02}$



1.  $1.9 \overline{)9.956}$

Estimate: \_\_\_\_\_

Quotient: \_\_\_\_\_

4.  $0.05 \overline{)1.43}$

Estimate: \_\_\_\_\_

Quotient: \_\_\_\_\_

2.  $7.3 \overline{)3.431}$

Estimate: \_\_\_\_\_

Quotient: \_\_\_\_\_

5.  $0.5 \overline{)44}$

Estimate: \_\_\_\_\_

Quotient: \_\_\_\_\_

3.  $0.04 \overline{)0.51}$

Estimate: \_\_\_\_\_

Quotient: \_\_\_\_\_

6.  $0.7 \overline{)70}$

Estimate: \_\_\_\_\_

Quotient: \_\_\_\_\_



3. Omar had 30 kilograms of planting soil for his garden. He used 2.8 kg in each of his 5 large planters. He used 0.4 kg to fill each of his remaining pots.

Find the maximum number of pots Omar can fill with his planting soil. Label your answer.





UNIT

6

Theme 2 | Mathematical Operations and  
Algebraic Thinking

# Unit 6

## Numerical Expressions and Patterns

Photo Credit: Anton Petrus / Shutterstock.com





## Concept (6-1)

# Multiplying Decimals

### Lesson (1): Numerical Expressions:

#### Basic Order of Operations

1. Multiply or divide from left to right.
2. Add or subtract from left to right.



**The Right Route** Ali drives a bus route through the city. His stops follow the order of operations for evaluating the expression.

$$300.53 - 11.04 \times 0.2 \div 0.01 + 13.07$$

STOP 1	STOP 2	STOP 3	STOP 4
A. $300.53 - 11.04$	E. $2.208 \div 0.01$	J. $57.898 \div 0.01$	N. $5,789.8 + 13.07$
B. $11.04 \times 0.2$	F. $0.2 \div 13.08$	K. $220.8 + 13.07$	P. $79.73 + 13.07$
C. $0.2 \div 0.01$	G. $289.49 \times 0.2$	L. $289.49 \times 20$	Q. $300.53 - 233.87$
D. $0.01 + 13.07$	H. $11.04 \times 20$	M. $300.53 - 220.8$	R. $57.898 + 13.07$

Record the letters of the correct stops along his route to show the steps for evaluating the expression.

1. Stop 1: \_\_\_\_\_

3. Stop 3: \_\_\_\_\_

2. Stop 2: \_\_\_\_\_

4. Stop 4: \_\_\_\_\_



**Lesson (2): Numerical Expressions with Grouping Symbol:**

**Grouping Symbols** Evaluate the set of expressions. Pay attention to the grouping symbols and how they change the order in which the operations are performed.

1.  $45.84 + 13.05 \div 5 + 20.32 - 1.14 \times 2.1$



2.  $(45.84 + 13.05) \div 5 + 20.32 - 1.14 \times 2.1$



3.  $30 \times [2.5 + (47.18 - 3.12) \div 0.1]$



4.  $(30 \times 2.5 + 47.18 - 3.12) \div 0.1$



### Lesson (3): Placing Grouping Symbols:

**Placing Grouping Symbols to Generate Values** Place grouping symbols (parentheses and/or brackets) in the expressions to generate the given values. Be sure to evaluate the expression completely to make sure you are correct. (Hint: Sometimes grouping symbols are not needed.)

1. The value is 9.  $6 - 5 \times 7 + 2$
2. The value is 27.  $9 \times 4 + 5 \div 3$
3. The value is 13.  $2 \times 18 \div 9 + 9$
4. The value is 11.  $88 \div 11 - 7 + 4$



### Lesson (4): Writing Expressions to Represent Scenarios:

**Writing Expressions** For each problem, work with a partner to write an expression that matches the clues. Then, evaluate the expression.

1. Subtract 3.1 from 4.62. Then, multiply the result by 2.
2. Divide 93 by 0.3 and then add 114.7. After, divide the result by 5.
3. Add 30.4, 87, and 17.5. Then, subtract the result from 224.7. Multiply by 100.



# Homework

**Order Matters** Use the order of operations to evaluate each expression.

1.  $56.5 \times 2.3 - 15 + 12.7$

2.  $90.7 + 116.6 \times 0.1 \times 2 - 20$



**How Many Values?** Use grouping symbols to create as many expressions with different values as you can.

1.  $29.2 + 43 \times 0.01 + 15 \div 0.1$

2.  $158 \div 2 + 6 \times 10.5 - 5$

3.  $57 - 11 \times 1.2 + 3.4 + 1.9 \div 10$





**Writing Expressions** For each problem, work with a partner to write an expression that matches the clues. Then, evaluate the expression.

4. Multiply 7.6 by 100. Next, subtract 34.3. Then, add 12.4. Last, divide the result by 0.1.
  
5. Find the difference between 10 and 9.27. Multiply by the sum of 54 and 46. Then, divide 1,168 by the result.



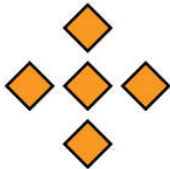
## Concept (6-2)

### Dividing Decimals

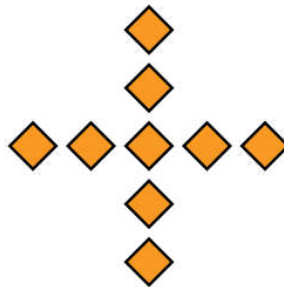
#### Lesson (5): Identifying Numerical Patterns:

**Tile Pattern** Yaseen is laying floor tiles in the pattern shown. Each picture represents one stage of the pattern, and the pattern grows consistently between stages. Answer the questions about the pattern.

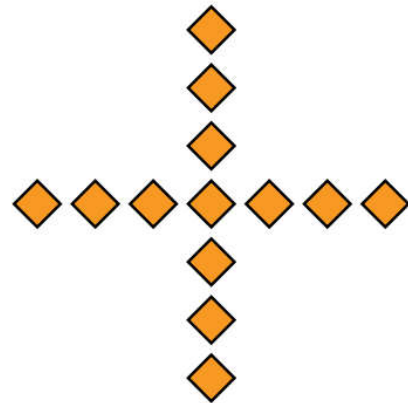
Stage 1



Stage 2



Stage 3

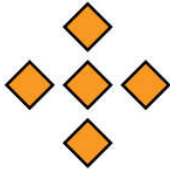


Draw Stage 4 and Stage 5. How many tiles do you think will be in Stage 10?  
Explain how you came up with your answer.

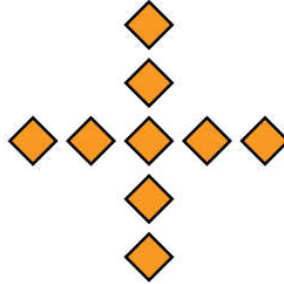


**Tile Pattern** Yaseen is laying floor tiles in the pattern shown. Each picture represents one stage of the pattern, and the pattern grows consistently between stages. Answer the questions about the pattern.

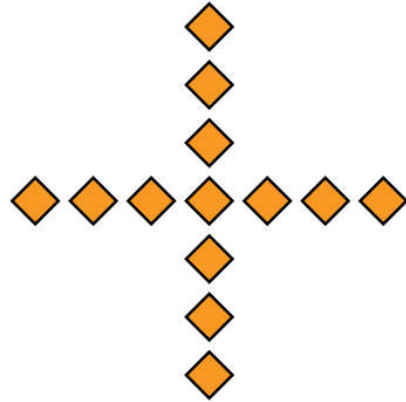
Stage 1



Stage 2



Stage 3



Draw Stage 4 and Stage 5. How many tiles do you think will be in Stage 10?  
Explain how you came up with your answer.



**What's the Rule?** Look at each table and determine the rule. Use a variable to write the rule.

1.

Input	Output
1	8
2	16
3	24
4	32
5	40

Rule: \_\_\_\_\_

2.

Input	Output
1	8
2	9
3	10
4	11

Rule: \_\_\_\_\_



## Lesson (6): Extending and Creating Numerical Patterns:

**Extending Other Patterns** Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values.

1. 52, 44, 36, 28, 20, \_\_\_\_\_, \_\_\_\_\_

Rule: \_\_\_\_\_

2. 23, 27, \_\_\_\_\_, 35, 39, \_\_\_\_\_, \_\_\_\_\_

Rule: \_\_\_\_\_



**Creating Patterns** Using the information given, list the first five numbers in the pattern.

1. Starting number: 1

Rule:  $n + 3$ 

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_





3.

Input	Output
5	20
6	A. _____
7	28
B. _____	32
9	36

Rule: \_\_\_\_\_

4.

Input	Output
10	6
12	7
A. _____	8
16	9

Rule: \_\_\_\_\_



## Lesson (7): Solving Problems with Numerical Patterns:

**What's the Rule?** Explore the pattern. How can you extend the pattern? (Think: How are the numbers changing? Is the change the same every time?)

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, \_\_\_\_\_, \_\_\_\_\_



# Homework

**What's the Rule?** Look at each table and determine the rule. Use a variable to write the rule.

3.

Input	Output
3	12
6	24
9	36
12	48

Rule: \_\_\_\_\_

4.

Input	Output
5	1
10	2
15	3
20	4
25	5

Rule: \_\_\_\_\_



Using the information given, list the first five numbers in the pattern.

a. Starting number : 4

Rule :  $n + 7$ 

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_



c. Starting number : 10

Rule :  $n \times 0.5$ 

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_



Choose the correct answer.

1. The rule of the pattern : 3 , 7 , 11 , 15 , ... is \_\_\_\_\_  
 A.  $n - 4$                       B.  $n + 4$                       C.  $n \times 4$                       D.  $n \div 4$

---

2. The rule of the pattern : 3 , 6 , 12 , 24 , ... is \_\_\_\_\_  
 A.  $n + 3$                       B.  $n \times 3$                       C.  $n \times 2$                       D.  $n \div 2$

---

3. The rule of the pattern : 1 , 2 , 5 , 14 , ... is \_\_\_\_\_  
 A.  $n + 1$                       B.  $n \times 2 - 1$                       C.  $n \times 3 - 1$                       D.  $n \times 2 + 1$

---

4. The rule of the pattern : 100 , 50 , 25 , 12.5 , ... is \_\_\_\_\_  
 A.  $n \div 2$                       B.  $n \times 2$                       C.  $n - 50$                       D.  $n - 25$



Using the following information, what is the first four numbers in the pattern ?

Starting number : 2

Rule :  $(n + 3) \times 2$

- A. 2 , 10 , 26 , 58      B. 2 , 5 , 8 , 11      C. 2 , 10 , 26 , 52      D. 2 , 10 , 25 , 50



Using the following information, what is the first four numbers in the pattern ?

Starting number : 3

Rule :  $n \div 0.2$

- A. 3 , 3.2 , 3.4 , 3.6      B. 3 , 0.6 , 0.12 , 0.024      C. 3 , 2.8 , 2.6 , 2.4      D. 3 , 15 , 75 , 375

